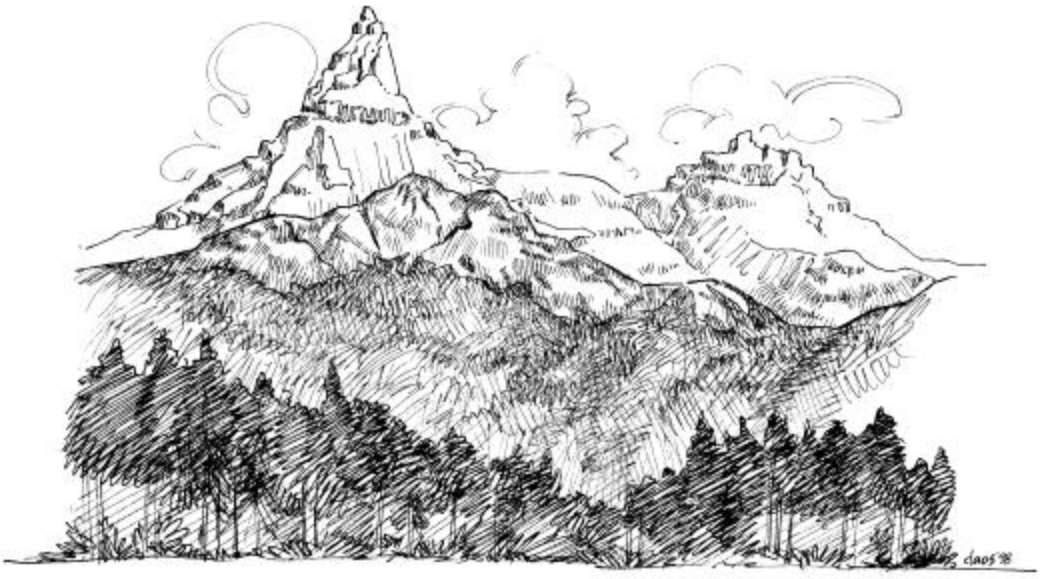
Forest Plan
Monitoring & Evaluation Report
Shoshone National Forest

Fiscal Year 2000



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March 2000

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Introduction

Monitoring is the preliminary step in the process of deciding whether or not to amend or revise the Shoshone National Forest 1986 Forest Plan. The statutory purpose for monitoring stated in the National Forest Management Act is to ensure that the management system selected in the Forest Plan "will not produce substantial and permanent impairment of the productivity of the land" [16 U.S.C. 1604(g)(3)(C)]. In order to avoid this result, Forest personnel monitor and evaluate the data collected to determine how well Forest Plan objectives are being met and how closely Forest Plan Standards and Guidelines have been applied. The regulations also allow evaluation on a sample basis rather than a comprehensive basis.

Once the report is completed there are two additional steps in the process of deciding whether to amend the Forest Plan. First, an interdisciplinary team evaluates the data collected through monitoring and recommends to the Forest Supervisor whatever changes the team deems necessary. Second, at some point the Forest Supervisor reviews the team recommendations and makes a decision whether or not change is warranted in the way the Forest Plan is implemented.

The following report evaluates Forest Plan implementation during fiscal year 2000. Additional multi-year data is presented in some cases in order to provide perspective on the current state of Forest Plan implementation.

Lower than anticipated budget levels have caused monitoring and evaluation to be less comprehensive than originally envisioned in many cases. However, monitoring efforts have been sufficient to allow the interdisciplinary team to evaluate implementation of the Forest Plan and make recommendations for the Forest Supervisor's consideration. Shoshone National Forest employees have become increasingly creative at implementing the Forest Plan and monitoring under existing budget levels. Some of the approaches noted in this report such as working with volunteers, permittees, special interest organizations, educational institutions, other agencies and National Forests, will become increasingly common as the Forest becomes more adept at developing alternative ways of getting work accomplished.

This report evaluates Forest Plan implementation under criteria from the 1986 Shoshone National Forest Plan as amended. The report concludes with the interdisciplinary team recommendations to the Forest Supervisor. Some of the recommended changes may be implemented through Forest Plan amendment or revision.

Forest Plan Budget

Actual Costs of Applying Management Direction from the Forest Plan

This monitoring item tracks the actual cost of implementing the Forest Plan and is used to verify assumptions made in the plan. The budget level necessary for implementation of the mix of goods and services projected in the 1986 Forest Plan was an estimate. The actual expenditures are reviewed every year and compared to Forest Plan projections. This is somewhat of a challenge given the many changes that have occurred in the budgeting process, in the fund codes used to track dollars allocated to a particular resource area, and in the way expenditures are tracked. In addition, fund codes have been combined or split out a number of times since 1986. The table below compares projections made in the Forest Plan (in 2000 dollars) to actual costs for 2000 using the most current fund codes.

Evaluation

The total 2000 expenditures for the Shoshone National Forest represent approximately 67% of Forest Plan projections (Figure 3). Although fluctuations in funding occur on an annual basis within particular resource areas, the overall trend in the last decade has been downward. The Forest's ability to implement Forest Plan management direction depends on the budget allocated by Congress.

In fiscal year 2000, the Forest Service converted to a completely new accounting tool. The Foundation Financial Information System (FFIS) replaces all previous accounting systems. In addition, a change to how project funds are expended has been implemented through the Primary Purpose Principle. Several budget line items will require significant adjustment as a result of Primary Purpose. These changes will make it difficult, if not impossible, to compare current expenditures with Forest Plan projections. In the future, this monitoring item will have to be addressed qualitatively.

Figure 1. Comparison of fiscal year 2000 expenditures to Forest Plan full implementation budget (thousands of 1999 dollars)

Cost Center and Cost Center Components	Fund Codes	Fiscal year 2000 Expenditure	Forest Plan
Ecosystem Planning			
Inventory and Assessment	NFIM	818	995
Planning and Monitoring	NFLP	69	105
Recreation and Wilderness			
Recreation Management	NFRM	594	971
Includes Facility and Trails Construction and Maintenance	NFTR	172	359
	CNTR	175	429
	CNRD*		
	CNRF	41	157
Heritage Resource Mgt.	NFHR	8	108

Cost Center and Cost Center Components	Fund Codes	Fiscal year 2000 Expenditure	Forest Plan
Wilderness Management	NFWM	414	398
Cooperative Work	CWFS, CWKV *	2	0
Wildlife and Fisheries			
Wildlife Habitat Mgt.	NFWL	162	464
Inland Fisheries Mgt.	NFIF	147	170
TE&S Species Mgt.	NFTE	197	404
Cooperative Work	CWFS, CWKV	6	0
Rangeland Management			
Grazing Management	NFRG	258	393
Rangeland Vegetation Mgt.	NFRV	220	157
Cooperative Work	CWFS, CWKV , RBRB	30	85
Timber			
Timber Sales	NFTM	598	518
	SSSS	28	117
	CNRD/PARD*	207	97
Reforestation & Timber Stand Improv.	NFFV	170	262
Cooperative Work	CWFS, CWKV, BDBD	39	25
Water, Soil and Air			
Soil, Water, & Air Mgt.	NFSO	68	205
Watershed Improvement	NFSI	125	214
Cooperative Work	CWFS, CWKV *	13	0
Minerals Management			
Minerals Management	NFMG	49	233
Infrastructure Management			
Real Estate & Special Use Management	NFLA	78	169
	NFLL	14	27
	LALW	5	33
Road Management and Maintenance	CNRM	375	989
Facility Maintenance	NFFA	118	310
Cooperative Work	CWFS, CWKV *	4	0
Protection Of Basic Resources			
Fire Protection Mgt.	WFHF WFPR	236 780	366 983
Cooperative Law Enforcement	NFLE	42	27
General Administration			
General Administration	NFGA	1,143	1404
GRAND TOTAL		7,405	11,174

* CNRD/PARD – not split out this year, lumped under timber

Recreation

In 2000, the emphasis for the front country recreation program on the Shoshone National Forest continued to be inventory of recreation and trail assets, a strong field presence of highly qualified rangers, providing for the health and safety of Forest visitors, stewardship and protection of Forest resources, and clean well-maintained facilities in addition to high quality services.

Priorities were:

- To continue deferred maintenance condition surveys for all facilities, and continue entering inventory and condition data into Infrastructure and Meaningful Measures databases.

- To protect the health and safety of Forest visitors and prevent human/bear conflicts.

- To protect the threatened grizzly bear by providing high levels of information, education, interpretation, monitoring, and compliance relative to the bear.

- To keep all administrative sites and public recreation facilities safe, clean, and well maintained.

- To perform adequate levels of monitoring, clean up, and site rehabilitation in dispersed areas so that Forest visitors have a high quality experience.

- To provide adequate levels of compliance/enforcement patrols to assure users and resources are protected, and user conflicts minimized.

- To educate visitors on proper land ethics and multiple use, focusing on no-trace techniques and avoiding human/grizzly conflicts

- To work as partners with resorts and outfitters to provide public safety, land stewardship, and high quality value-added visitor services (including education and interpretation)

Monitoring was integrated into all aspects of fieldwork. In addition the Shoshone National Forest continued work on several nationwide Forest Service initiatives designed to help recreation managers better implement and monitor quality recreation experiences and facilities. Generally these initiatives involve establishing a database to record all developed and dispersed recreation sites, their conditions, visitor occupancy rates, and their costs of operation. The Meaningful Measures and Infrastructure databases are currently in place on the Forest and baseline data is being entered. An inventory of the recreation facilities' deferred maintenance backlog was continued and includes trails in addition to recreation facilities.

1. Off Road Vehicle Use of Designated Travelways

Off-road vehicle (ORV) use on the Shoshone National Forest is restricted to travel on designated roads, signed with white arrows and/or Forest road numbers, and snowmobiles traveling on snow where permitted. Off-highway vehicle (OHV) use both nationally and on the Shoshone National Forest, is increasing at a noticeable rate. In fiscal year 2000, the Forest Leadership Team devoted an entire monitoring trip to the south zone of the Forest. Off-road vehicle impacts and snowmobile use were monitored and addressed.

Snowmobile use data is being collected with the assistance of the State of Wyoming. A more formal program of snowmobile monitoring was agreed to with agencies of the Greater Yellowstone Area to establish baseline use information in anticipation of changes in snowmobile use in Yellowstone National Park. The monitoring effort will begin in FY 2001.

Evaluation

Clarks Forks District: The following continue to be problem areas: Morrison Jeep Trail, Fantan, and the Lily Lake trails. Monitoring continues to indicate an overall increase in OHV use on the Clarks Fork District.

Greybull District: OHV use continues to increase.

Wapiti District: Forest personnel on the Wapiti District monitored OHV use through visual observation, photography, violation notices, and incident reports.

Washakie District: District personnel are having difficulty responding to the overall level of OHV use on the district, and increasing public pressure for more ORV trails. OHV use off road and on closed roads and trails is becoming visually evident in some parts of the District.

Wind River District: Monitoring by Forest Service law enforcement personnel indicates that the increasing use trend in the Union Pass area continues. OHV use off road and on closed roads and trails is becoming visually evident in some parts of the District.

Overall, increased emphasis and planning for OHV use is needed on the Forest. Use continues to expand into areas not previously impacted and resource impacts are becoming evident. Though the Forest does receive the impacts experienced by some forests and jurisdictions across the west, OHV use is increasing at a rate that will make management of the use a primary issue in future years.

2. Dispersed Recreation Use and Experience and Dispersed Campsite Condition

In 2000, approximately 65% of dispersed sites on the north end of the Forest were monitored. Dispersed sites along roads were monitored more frequently than backcountry sites. On the

south zone of the Forest, 100% of the dispersed sites on the Wind River District were inventoried and monitored and 50% of those on the Washakie District.

Evaluation

Dispersed campsite inventories in areas not previously inventoried were conducted on the south zone in 2000. Dispersed campsite issues remain, but are not increasing beyond those of past years. Primary focus of dispersed site management is in wilderness on the Forest.

3. Developed Site Use

Developed recreation site use is monitored largely through user fees and observation. More reliable use data is available for sites where fees are collected. Where user fees are not collected, district recreation personnel keep track of use in a number of ways including car counts at trailheads, visual estimates, and sign-in sheets.

Evaluation

In general, use of developed sites appears to be stable. Although overall visitation seems to be increasing, overnight use appears static. Some downturn in use is associated with North Fork Highway construction on the Wapiti District. Also, the severe fire season of 2000 impacted tourism and campground use in late summer. The Forest closed several campgrounds for two weeks in late September due to lack of personnel to safely operate the facilities. Extensive and repeated fire assignments throughout the west depleted the Forest's ability to continue operation of all facilities.

In the past few years, region-wide standards (USFS Rocky Mountain Region) for maintaining recreation facilities were developed and prioritized. Implementation of the Meaningful Measures system began in 1998 and continues. This process is expected to help the Forest better define the quality and amount of use it provides. With implementation of Meaningful Measures, monitoring of developed recreation site use will be consistent throughout the National Forest system.

4. Developed Site Condition

The US Forest Service operated all but four campgrounds on the Shoshone NF in 2000. A concession was successfully implemented for developed campgrounds on the Washakie District.

A major effort to inventory deferred maintenance needs for facilities continues. Assessment of recreation facilities, as well as costs to bring facilities up to standard, will be occurring over the next five years. The Washakie District inventoried and entered data on 100% of its facilities and the other districts completed the 20% scheduled.

Evaluation

Written public comments indicate that in general, the public feels campground facilities on the Forest are clean and well maintained. The primary problem noted by Forest personnel is the degradation of these facilities through daily wear and tear. Most of the picnic tables, hand pumps, fire rings, and toilets have been in place since the 1960s and need to be replaced. Despite the heavy use these sites receive, soil and vegetation condition is generally good.

All campground facilities in the North Fork corridor of the Wapiti District are planned for upgrading and retrofitting during the next decade. Three Mile Campground was completed in 1999 and was opened to the public in 2000. Use of developed sites in this corridor remains comparatively low as road construction activity impacts visitation and overnight stay levels. Rex Hale campground and Newton Springs picnic sites were decommissioned by road construction operations; construction of replacement facilities is underway for completion in 2001. Major accomplishments in 2000 included several new restrooms in various locations.

The campground facilities on the south zone of the Forest are in poorer condition than those on the north zone. The Louis Lake campground on the Washakie District, for example, continues to receive heavy use with subsequent resource impacts to the campsites and surrounding area. Major rehabilitation and/or reconstruction are needed. The water system in the Sinks Canyon campground requires constant maintenance. Additional capital investment funds are needed to upgrade these facilities.

5. Trails

Summer/Fall Use Trails
Trail condition is monitored annually on the Shoshone National Forest. In 1999 the Forest Service began an inventory of assets. In response to the requirements of the inventory policy, approximately 20% of the trails on the Forest are inventoried for deferred maintenance needs annually. At the end of fiscal year 2000 approximately 40% of the Forest's 1,388 miles of trail were inventoried. Data was entered into appropriate databases and written records. Way trails that were no longer evident on the ground or that access wilderness areas managed for pristine conditions were removed from the trail system.

The priority on the Forest pertaining to trails management in 1999 and 2000 was, and will continue to be, deferred maintenance condition surveys. These surveys are the essence of very detailed inventory and monitoring of existing conditions and needs.

The Forest Plan calls for maintenance of trails that provide a full range of recreation opportunities. It also states that design and maintenance of trails should be appropriate for the intended use. Throughout the Shoshone National Forest, a very wide range of recreation opportunities is available relative to the trail system and management objectives, ranging from challenging foot travel to motorized uses. The majority of trails on the Forest are currently constructed and maintained to be compatible with the intended use. The only

exceptions are those trail segments outside wilderness that were not intended for motorized use. Due to the introduction of ATVs during the last decade and the tremendous increase in their popularity, many primitive trail segments not designed for motorized travel are being used in that fashion. Resource damage is occurring as a result.

Structures
All bridges are still serviceable and safe, but due to age some may need replacement in the near future. Currently, two bridges with a high priority for replacement are the Cut Coulee Bridge and the Red Creek Bridge, both on the Wapiti District.

The Forest's south zone trail program has had a greater emphasis on structures. Therefore their corduroys are maintained to a higher degree than on the north zone. However corduroys continue to be a major challenge to the goal of maintaining to standard in granitic areas of the Forest.

The major problem in the Beartooth Mountains on the Clarks Fork District, in addition to the absence of structures where needed, is the deteriorated condition of many existing drainage and retaining structures. Some are non-functional.

Identification of deferred maintenance needs through inventory will help the Forest establish priorities for repair and reconstruction. Mass failures occurred on the Whiskey Mountain Trail on the south zone of the Forest effectively closing that route. All other failures of trail tread or structures that could pose a major safety threat to the public were repaired during the field season.

The lack of adequate drainage structures forestwide, in conjunction with minimal maintenance/installation, has resulted in a less than satisfactory condition of drainage structures.

Evaluation

Meeting public expectations for acceptable levels of trail maintenance continues to be a problem for the Shoshone National Forest, given the extensive miles of trail in the system. Although many areas still need maintenance, there are many miles of trail at an acceptable standard. Analysis of deferred maintenance inventory data is helping the Forest prioritize trail safety problems and plan repairs as funds become available.

During the record-setting 2000 fire season, heavy demand for backcountry and trail employees for fire duty significantly impacted trail patrol and maintenance accomplishments, yet the Forest met assigned trail maintenance targets. Trail patrols and light maintenance allowed the Forest to keep all mainline trails open with the exception of the Whiskey Mountain trail, which will require major relocation work to become serviceable. The result of fire duty was primarily a reduction in heavy maintenance and drainage activities on the trail system.

Winter trail use by cross country skiers, snowshoe users, and others continues to be a minor but noticeable use.

Use of motorized vehicles on trails, both where permitted and in many areas where restricted, is expanding rapidly as observed by patrol personnel and on the ground impacts.

In terms of winter use, monitoring on the Clarks Fork District indicates increasing snowmobile use. Monitoring also indicates some curtailment of snowmobile intrusions into the Absaroka Beartooth Wilderness. The decrease is most likely due to installation of new signs warning snowmobilers against motorized vehicle use in the wilderness. The signs also clearly mark where the wilderness boundaries are located. The local snowmobile club and the State of Wyoming have been instrumental in this program's success.

On the Forest's south zone, evaluation of data collected from 25 infrared counters along snowmobile trails was completed by the State of Wyoming's Department of Commerce. Monitoring continued into its second year.

Reduction of winter wilderness snowmobile trespass has been improving on both zones because of patrols, well-publicized convictions of offenders, and increased signing of wilderness boundaries for winter recreation. A small percentage of snowmobilers continue to trespass.

The Shoshone National Forest continues to be represented on an interagency team charged with evaluating winter visitor use in the Greater Yellowstone Area. The team was chartered by the Greater Yellowstone Coordinating Committee (GYCC) in response to greatly elevated levels of snowmobile use in Yellowstone National Park, and a number of other issues that are, or could potentially, affect the six national forests and two national parks represented. A formal monitoring program will be implemented in 2001.

6. Downhill Skiing Use

The Sleeping Giant Resort is the primary downhill ski area on the Shoshone National Forest. It is located on the Wapiti Ranger District and can accommodate approximately 1000 skiers per day.

Figure 2. Sleeping Giant skier days for the last five years

Season	December	January	February	March	April	Total
95/96	964	1,679	1,280	1,241		5,154
96/97	1,002	1,313	1,295	830	88	4,528
97/98	366	1,243	1,020	697	64	3,390
98/99	599	1,883	1,477	610		4,569
99/00	840	1,855	1,260	590		4,545

Evaluation

In fiscal year 2000, downhill skier use at the Sleeping Giant Resort was steady and consistent with use in previous normal years such as that recorded in the winters of 95/96, 96/97, and 98/99.

The Red Lodge Race Camp on the Clarks Fork District offers a summer program for ski race training. Four weeklong sessions run from early June through early July, providing a training opportunity in the summer season for ski racers.

The Forest Plan recommends reevaluation of ski area development when use exceeds managed capacity for three years. Current figures of use at the Sleeping Giant Resort demonstrate that use remains well below capacity at this time. The resort does provide a base for other winter recreation pursuits in the area such as cross country skiing and an alternative and overnight attraction for users of Pahaska Tepee snowmobile rentals.

Wilderness

1. Wilderness Campsite Condition

Wilderness campsite inventory continued in 2000 but efforts were significantly diminished by the demands of the 2000 fire suppression season. Most sites within wilderness have been identified and mapped. A wilderness campsite condition rating has not yet been implemented Forest wide. Wilderness rangers have identified problems related to food storage structures, and the Forest has initiated a policy review team to deal with that issue. A decision on food storage orders and accepted methods will be made in 2001 based on the inventory feedback from wilderness rangers, input from outfitters and other agencies.

2. Other Wilderness Monitoring

Wilderness Managed to Standard
Monitoring continues in the Forest's five wilderness areas. Based on current and previous monitoring efforts, the Forest estimates 1,024,000 acres meet Forest Plan standards for wilderness. That area is an estimate of the acreage in pristine condition. Additional evaluation may show additional acres meet Forest Plan standards in future years.

Noxious Weeds
A vigorous noxious weed inventory, monitoring and control program for wilderness began in fiscal year 2000. The primary focus was in the South Fork of the Shoshone River drainage on the north zone of the Forest and the Double Cabin area on the south zone. Primary species of concern include toadflax and hounds tongue. The regional office approved a request for Minimum Tool Use of herbicides on wilderness sites. Sprayers brought in on horseback were used to treat toadflax infestations in the South Fork of the Shoshone River drainage on lands adjacent to and within wilderness. Wilderness rangers were trained in identification of noxious weed species and they have contributed one season of monitoring for weeds. Two volunteers were also used to inventory wilderness sites for noxious weed infestations.

Wilderness Education
Wilderness rangers on patrol in wilderness areas made approximately 1900 contacts. Education is focused on in-the-field contact with users because many are repeat visitors to the Forest. This approach has allowed the Forest to combine wilderness education with efforts to monitor wilderness, maintain trails, and enforce the law. The Forest continues to hire a field-trained wilderness ranger workforce for these purposes.

Evaluation

Wilderness areas on the Shoshone National Forest are in good condition, overall. A future challenge will involve successful implementation of wilderness fire plans. In addition, invasion by exotic weed species is a potential threat to wilderness ecosystems. The Forest is placing additional emphasis on weed-free feed programs and may need to devote additional

resources to the noxious weed program. This will depend on the results of monitoring current activities aimed at stemming noxious weed invasions.

Campsite inventory and visitor contact efforts have been very successful in achieving high levels of awareness among the Forest's wilderness users about *Leave No Trace* principles and grizzly bear behavior. High mortality of bears in 2000 show that additional work is needed with the hunting community and outfitters as this is the season when most bear-human encounters have resulted in grizzly mortality. The high level of one-to-one field contact by wilderness rangers on the Forest continues to be the cornerstone of wilderness management for the Shoshone Forest.

Visuals

Adopted Visual Quality Objective (VQO)

Visual quality objectives (VQO) are the goals that describe the acceptable degrees of alteration allowed in the natural landscape (Land and Resource Management Plan, FEIS, Vol.I, page VII-35). This monitoring item was intended to ensure that projects meet VQO or that corrective action, such as mitigation, is initiated when it appears a project will not meet VQO.

VQO are monitored on a project level and attained through project implementation. Projects are monitored for VQO compliance on the Shoshone National Forest through the NEPA process. If project level analysis indicates that an existing VQO, as identified in the Forest Plan, is not going to be met by the proposed action two options are available. First, if the VQO is inappropriate for the project area, a Forest Plan amendment can change the VQO. The amendment is accomplished through NEPA. Second, if the visual analysis shows that the VQO is appropriate for the project area but is not being met (or is not going to be met), mitigation measures must be taken to meet the VQO in a minimum amount of time. Timeframes for meeting VQO vary between individual visual quality objectives.

In fiscal year 2000, the following projects were monitored for consistency with Forest Plan VQO:

1. The North Fork highway reconstruction project. Construction was monitored weekly to ensure that roadway design conformed to the VQO of retention.

2. Middlefork prescribed burn. A visual assessment was performed on the area of the proposed burn. Existing and post fire conditions were documented in an environmental assessment.

3. Fiddlers Lake timber sale. This timber sale focused on improving forest health and visuals and maintaining VQOs.

4. Scenery Management System (SMS). Evaluation of the existing VQOs for the new SMS continued in fiscal year 2000 in preparation for Forest Plan revision. SMS, currently under development, will eventually replace VQOs with new desired scenic integrity levels for the Forest Plan. SMS inventory documentation and mapping for the Washakie District is complete.

Evaluation

North Fork Highway Reconstruction:
Now in its fifth year, the North Fork highway reconstruction project is nearing completion. The first section of highway, Wayfarers, has healed over well. Seeding and planting has been successful. From a visual perspective, the VQO designation of retention has been maintained in the area affected by highway reconstruction.

The second section of highway, Hanging Rock, is also responding well to seeding and planting. There are a few places that will be reseeded in the spring of 2001. However, this section is either meeting a VQO of retention or is moving toward that desired future condition. The area of shotcrete rock (a type of concrete) will be altered to better blend with natural existing rock.

The last section, Palisades, is close to completion. It is also meeting retention or working toward achieving that goal within a five-year timeframe.

NEPA Projects- Fiddlers Timber Sale EA:
After assessing the current state of the site it was determined to be out of compliance with its VQO. The Forest Plan says the valued landscape character of this piece of land should be one with healthy vigorous vegetation, a mosaic of age classes, and high amounts of edge for diversity and wildlife habitat. What currently exists is a dead and dying monoculture in need of fire rejuvenation. The strategic design for Fiddlers is concentrated on achieving a retention and partial retention VQO by mimicking natural openings, providing sight distance safety, creating vistas, developing vegetative diversity, and providing wildlife viewing opportunities.

NEPA Projects - Middlefork Prescribed Burn EA:
The Middlefork prescribed burn area is designated as mostly partial retention with a few pockets of retention. The burn was determined to be within the scope of its VQO. Long-term results would improve the vegetative quality and diversity.

Scenery Management System:
The existing condition inventory needs to be reviewed by Washakie District personnel and another review with completed maps will be scheduled. Although the SMS for the Wind River and Washakie Districts is still in draft form, it appears that there may be a change in the Scenic Byway VQO designations. In the new SMS, Scenic Byways will be in a category of their own with more detailed explanations of the types of compatible activities. Also, a broader view of the ecosystem and its components will be incorporated into each of the designations.

Cultural Resources

Introduction

The role of the cultural resource programs is to provide stewardship for the prehistoric and historic sites located on the Forest. Site protection, investigation, interpretation, and public education are some of the services provided by the cultural resources program.

Another component of the program is to provide support to the other resource programs on the Forest. This assistance consists of completing the Section 106 process prior to project implementation, as required by the National Historic Preservation Act, and providing input to National Environmental Policy Act (NEPA) analyses.

1. Compliance with Cultural Resource Regulations

The Forest worked through many issues of compliance with cultural resource regulations in 2000. In coordination with the State Historical Preservation Office (SHPO), a program was developed and implemented to help the Forest comply with cultural resource regulations. The following activities are aimed at compliance.

Inventory
Approximately 2,000 acres of the Forest were inventoried and 31 sites were recorded as a result of Section 106 surveys in fiscal year 2000.

Public Education
Forest personnel gave one archeological presentation and two site tours in fiscal year 2000. The Forest, in cooperation with Wyoming SHPO, also conducted a structural stabilization project at a historic site with the help of volunteers.

Evaluation

The Forest Plan cites 1990 as the target date for completion of cultural resource inventories. Given the fact that much of the Forest was not inventoried at the time the Forest Plan was being written, this was not a realistic target. Consequently, a change in management direction was identified. The Forest was to develop a program to complete cultural inventories in the next ten years. As a result of relying solely on Section 106 inventories, the second target was missed and four years later much of the Forest remains un-inventoried. It is recommended that during Forest Plan revision either the goal of inventorying the entire Forest for cultural resources be modified or a completion date set that is realistic given the resources expected to be available to accomplish the task.

The remedial plan developed jointly with the SHPO office was implemented and the Forest addressed all of the issues outlined in the plan. The Forest will continue to work towards full compliance with cultural resource regulations in coordination with SHPO.

2. Protection of Properties Eligible for the National Register

In fiscal year 2000 thirty-one sites were evaluated for National Register eligibility and one site was interpreted. No sites were nominated for the National Register. Visual assessment of site conditions at 10 sites listed on the National Register occurred in FY 2000. In addition, 20 to 25 sites, which have been determined eligible for the National Register, were visually assessed. Site forms were updated and sites reevaluated for a number of sites designated early on. Figure 1 lists sites monitored in fiscal year 2000 and their status.

Figure 3. Cultural sites monitored in fiscal year 2000

Site Number	Site Name	National Register Eligibility	Status and Recommendation
48PA201	Mummy Cave	Listed	Damage occurring[1], Continue monitoring
48PA551	Dead Indian Campsite	Listed	No change in condition observed
48FR308	Lookingbill	Concurred Eligible	No change in condition observed, use by dispersed campers, District Ranger notified
48PA659	Kirwin Town Site	Concurred Eligible	No change in condition observed
48FR2886	None	Unevaluated	No change in condition observed

1. The north wall of the block excavation conducted at Mummy Cave, 48PA201, in the early 1960s is experiencing rill erosion. The southern extent of the block excavation is pock marked from visitors gouging into the wall. No artifacts or features were observed at the site. The site should continue to be monitored to see if additional artifacts or features are being exposed by disturbances of the unexcavated portions of the rock shelter.

Evaluation

The Forest Plan cites 1990 as the target date for nominating properties to the National Register. This was not accomplished and the Forest has a backlog of eligible sites that have not been nominated to the National Register.

It is recommended that during Forest Plan revision either the goal of nominating sites to the National Register be revisited and a schedule developed that reflects the inventory strategy that the forest will be using to identify sites, or a completion date be set that is commensurate with the resources expected to be available to do the job.

Additional Monitoring

Per a Memorandum of Understanding (MOU) with the SHPO, the Forest agreed to perform visual examination of areas identified as having high potential for heritage resources and high probability of impacts associated with livestock grazing. In 2000, a concerted effort was made to examine these areas to ensure that the terms of the MOU are being followed. The effort was successful and many areas were examined or inspected. The Forest will continue monitoring these areas.

Wildlife And Fish

1. Wildlife Habitat Improvements

In fiscal year 2000 several of the habitat improvement activities implemented were also monitored for accomplishment success. Improvements included treating invasive noxious weeds, burning stands of relatively dense sagebrush and conifers to modify plant composition and improve the condition of wildlife forage, and planting whitebark pine and other conifers to reestablish cover or improve diversity of cover types. A total of 500 acres were treated chemically in various locations on the Forest to limit invasion of noxious weeds, increase the coverage of native plant species, and improve desired habitat conditions and diversity. The effectiveness of the treatments was monitored a few weeks after the initial treatments.

Approximately 4,320 acres of sagebrush, conifers, or a mix of vegetation types were burned in several locations across the Forest. The primary objective was to retard plant succession and improve habitat for bighorn sheep, elk, grizzly bears, and other wildlife in approximately one-third of this total area. Reduction of fuels, improvement of forage for domestic livestock, and movement toward long term desired forest conditions as well as maintaining or improving wildlife habitat conditions were objectives in other areas.

Finally, over 730 acres that were burned in the 1988 wildfires were replanted to coniferous species or diversified with additional species. The goal is to provide wildlife cover in future years. An increase in habitat improvement projects is currently planned for fiscal year 2001. It is anticipated that increased funding for vegetation manipulation in the immediate future, particularly in the areas of fuels reduction and other fire related areas, should provide a significant opportunity to improve overall Forest wildlife habitat conditions.

Evaluation

Initial monitoring indicates the objective of reducing noxious weeds in all chemically treated areas was achieved, however monitoring in subsequent years will be necessary to determine long term success in weed reduction and reestablishment of native vegetation. Similarly, areas treated with prescribed fire achieved the objective of retarding plant succession but subsequent monitoring will be necessary to determine to what degree improvement in forage quality and quantity was achieved. Although initial results indicated good survival of planted conifers, subsequent monitoring will also be important in these areas to determine the overall success in improving the quality and quantity of coniferous cover.

2. Winter Range Carrying Capacity

The Forest was unable to accomplish monitoring for this item in fiscal year 2000. Factors contributing to this outcome included insufficient funding to hire wildlife seasonal employees, the necessity to continue NEPA analysis for additional range allotments (per the

Rescission Act), and high priority work for range seasonal employees associated with deferred maintenance inventory work.

Range

1. Grazing Use

For the purpose of this report, grazing use is defined as the number, kind, and class of commercial livestock permitted to graze on the forest. The units used to report and compare this information are Animal Unit Months (AUM). An AUM is the amount of forage consumed by one 800 lb. dry cow in one month based on the consumption of approximately 28 lbs. of dry forage per day. The amount of forage consumed by recreation visitor livestock and permitted outfitter/guide pack and saddle stock is not included in this category.

The Forest Plan contains a list of management practices and proposed outputs for those practices (see Chapter III, Table III-1, pages III-13 to III-14 for range projections). In terms of commercial livestock grazing, the Forest Plan predicted an average annual output of 78 thousand AUM for cattle and horse grazing and 25.4 thousand AUM for sheep and goats for a total of 103.4 thousand AUM per year during the period between 1985 and 2000. Several allotments have been closed to commercial livestock grazing since the Forest Plan was published. The current allocation for cattle and horses is now 77.4 thousand AUM and that for sheep is 20.3 thousand AUM, for a total of 97.7.

Figure 4 displays actual available commercial livestock grazing use on the Forest from 1986 to the present. Authorized non-use refers to grazing use offered but not taken by the permittee for personal or for resource protection reasons. Although vacant allotments are available for grazing, they were not grazed this year either due to lack of demand or because the grazing permit was waived back to the Forest Service and a new permit has not been issued.

Figure 4. Actual available commercial livestock grazing use (1,000 AUM)

Year	Cattle/ Horse	% Plan	Sheep*	% Plan	Total	% Plan
Forest Plan	77.4		20.3		97.7	
1986	54.6	71	3.5	17	58.1	60
1987	76	58.6	2.0	10	60.6	62
1988	56.4	73	2.3	11	58.7	60
1989	57.9	75	2.3	11	60.2	62
1990	64.3	83	2.3	11	66.6	68
1991	57.7	76	1.6	8	59.3	61
1992	49.1	63	.9	5	50.0	51
1993	56.0	72	1.4	7	57.4	59
1994	53.6	69	.4	2	54.0	55
1995	56.8	73	.2	1	57.0	58
1996	56.8	73	1.3	7	58.1	59
1997	54.2	70	1.6	8	55.8	57
1998	58.2	75	1.4	7	59.6	61
1999	56.5	73	1.3	7	57.8	60
2000	56.5	73	1.3	7	57.8	60

*No commercial goat grazing is occurring on the Shoshone.

Evaluation

Commercial livestock grazing use has never been as high as projected in the Forest Plan. Cattle grazing has averaged about 57,600 AUM, or approximately 58% of that projected. Sheep grazing has been at an even lower level, averaging about 1,600 AUM or approximately 8% of that projected. Actual use in the calendar year 2000 grazing season reflects this trend. While demand for cattle grazing allotments is high, many sheep allotments remain vacant due to depressed markets, predation problems, and conflicts with threatened and endangered wildlife species.

2. Vegetation Utilization

In 2000 vegetation utilization by both livestock and wildlife was measured by various methods. Grass and forb use was documented through ocular estimation (visual comparison between grazed and ungrazed vegetation), height/weight measurements and clipping and weighing. Use on browse plants was recorded from ocular estimation and browse transects. These methods were used during field season to monitor approximately 134,800 acres on 35 allotments. This represents 41% of a total of 85 allotments upon which commercial livestock were permitted to graze (*see* table 5).

Most of the allotments on the Shoshone National Forest are managed under a modified deferred-rotation grazing system. Under this system, grazing is delayed (not scheduled) on a given area or unit of the allotment during the active growing season to allow plant reproduction, recovery, or establishment of new plants.

The Forest has an ongoing range utilization, condition, and trend-monitoring program performed by the permittees. This data collection process was established in 1998 with assistance from the University of Wyoming and the Wyoming Agricultural Extension Service. This year 16 permittees collected some type of monitoring data on 14 of the allotments listed in figure 5 (denoted with an asterisk).

Figure 5. Allotments monitored for utilization

Allotment Name	Acres		Allotment Name	Acres
Bald Ridge *	4,600		Piney *	1,800
Basin *	8,500		Sunshine	1,500
Crandall I	1,300		Belknap *	5,200
Crandall I	1,300		Community	1,600
Face of the Mtn. *	4,500		Pearson	3,300
Ghost Creek	5,800		Bayer Mountain *	2,500
Lake Creek	3,800		Ed Young *	3,600
Little Rock (008) *	2,600		Frye Lake	2,800

Allotment Name	Acres		Allotment Name	Acres
Crandall II	2,300		Hays Park	1,300
Dick Creek *	2,800		Maxon Basin	1,000
Greybull *	10,30		Middle Fork	1,000
Guard Station	6,200		South Pass	2,000
Kirwin	1,100		Horse Creek	2,100
Pickett Creek *	3,200		Union Pass	8,400
Sugarloaf	1,800		Warm Springs	5,500
Timber Creek	3,400		Wiggins Fork *	12,500
Wood River	800		Wind River *	8,900
East Fork	600		Salt Creek *	6,200
Total				134,800

Evaluation

Despite the drought conditions over much of the Forest, forage utilization by commercial livestock generally did not exceed acceptable standards on any one allotment during the 2000 grazing season. Livestock were removed from the Forest earlier than the permitted off-date on several allotments because allowable utilization levels were reached. In a few instances, utilization on isolated areas within an allotment did exceed acceptable standards. The level of utilization within these areas was not representative of the average utilization within the entire allotment and did not exceed acceptable standards by more than 10% for the allotment.

3. Range Condition and Trend

Range analysis field exams used to assess range condition and trend are conducted according to a process described in the Region 2 Rangeland Analysis and Management Training Guide and the Interagency Technical Guide. The methods used this past field season were photo point, photo transect, and general observations made during allotment inspections.

Evaluation

Initial analysis of the data, reports, and photographs indicate that, in nearly every case, range conditions are improving and moving toward desired conditions. Rangeland already in desired condition showed the least change and those changes were due to natural succession. Rangeland that is in less then desirable condition demonstrated the greatest response to improved management and more intensive livestock manipulation. Forest wide, with a few exceptions, range vegetative conditions are either at or moving toward the desired conditions as outlined in the Forest Plan and/or Allotment Management Plan.

4. Allotment Management and Permittee Plans

The draft environmental assessment (EA) for 31 livestock grazing allotments was released for public review and comment in mid December 2000. Comments received were addressed and the document was edited to reflect them. Following completion of the heritage survey and biological evaluation during the 2001 field season, a final EA will be published along with the appropriate decision document. The following allotments are included in the analysis:

- Bald Ridge
- Bayer Mountain
- Bennett Creek Allotment Complex (Deep Creek, Little Rock, Stockade, Deep Lake, Line Creek East)
- Big Creek
- Burnt Mountain
- Crandall I
- Crandall II
- Dunn Creek
- Dunoir
- Ed Young Basin
- Face of the Mountain
- Frye Lake
- Ghost Creek
- Green Creek
- Middle Fork
- Peat Beds
- Robbers Roost Allotment Complex (Logan Mountain, Pearson, Rattlesnake, Jim Mountain)
- Table Mountain
- Trout Creek
- Union Pass
- Warm Springs
- Wind River

Once the decision document is signed an Allotment Management Plan (AMP) will be developed that implements management practices to achieve the desired conditions outlined in the selected alternative.

Grazing instructions are developed and reviewed by the agency and permittee annually. This may occur in conjunction with development of the AMP. These annual instructions specify the rotation schedule, number of livestock, the season of use and any other practices that are necessary for proper management of the resource and to implement the Forest Plan standards and guidelines.

Evaluation

Due to monetary constraints only ten allotments will be surveyed for impacts to heritage resources. As a result, the EA and decision document released this fall will include only the following allotments.

Deep Lake	Green Creek	Jim Mountain
Wind River	Rattlesnake	Big Creek
Dunn Creek	Crandall I	Bayer Mountain
Trout Creek		

Completion of the NEPA process for these allotments will help the Forest remain on schedule with the Rescission Act (Public Law 104-19) which addresses how the Forest Service is to conduct grazing allotment analysis and grazing permit issuance relative to compliance with .

5. Forage Development (Range Readiness)

Sufficient plant development before grazing helps ensure the long-term health and vigor of the rangeland resource. The Forest Plan requires inspection of 10% of active grazing allotments annually to verify adequate forage development before livestock use. Adequate plant development by the permitted on-date was field verified in 2000 on the following allotments.

Ghost Creek	Bald Ridge	Dick Creek	Hays Park
Fish Lake	Salt Creek	Wiggins Fork	Sunshine
Table Mountain	Little Rock Creek	Bald Ridge	Piney Creek
Pickett Creek			

Evaluation

Data collected confirmed that plant development was at or beyond the desired stage before the livestock on-date of all allotments checked.

6. Noxious Weeds

In 2000, the Shoshone National Forest continued to inventory for noxious weeds and undesirable plants. Data was entered digitally into a Forest database and will be shared with other Forests in the Greater Yellowstone Area for use in the development of an area map of weed infestations. All the adjacent Forests and Yellowstone National Park will use this map to help prioritize treatment areas and provide valuable information to adjacent land managers.

Forest personnel, contractors, and adjacent county weed and pest districts performed treatment on approximately 600 acres of National Forest land infested with noxious weeds. Treatments included the use of chemical, mechanical, and biological control agents.

Evaluation

Information gathered will be used on the Forest to establish a baseline for comparison with future data collection, to monitor the increase or decrease of weed infestations, and as a way to measure the success of this year's, as well as future, weed control treatments. *See* Wildlife and Fish, Wildlife Habitat Improvements (page 17) for further discussion on noxious weeds.

Timber Resources

1. Allowable Sale Quantity

The Allowable Sale Quantity (ASQ) is the maximum volume of timber that may be sold from the suitable timber base during the planning period specified in the Forest Plan. The quantity is normally expressed as the average annual allowable sale quantity. The intent of this monitoring item is to facilitate tracking of how close the Forest is to meeting the ASQ during any given year, and to ensure that it is not exceeded in any given decade.

The Shoshone Forest Plan was amended in August 1994 to reflect a recalculated ASQ. The revised ASQ is 45 million board feet (MMBF) per decade or an average annual of 4.5 MMBF.

The Timber Sale Accomplishment Report for fiscal year 2000 shows that the Shoshone National Forest sold 224 thousand board feet (MBF) or 0.224 MMBF of green (live) timber. This figure represents approximately 3% of the target for the fiscal year. The Forest also sold 2.2 MMBF of salvage volume, consisting of small salvage sales, fuelwood, and other product sales (post and pole, commercial fuelwood, house logs, etc.). This represents approximately 88% of the target for fiscal year 2000. Total sale volume on the Forest in fiscal year 2000 was approximately 2.4 MMBF.

Evaluation

There are several reasons why the Forest did not meet the projected new sale allocation for fiscal year 2000. The Forest postponed the Double Cabin Timber Sale on the Wind River District after environmental groups filed a lawsuit. Total volume for this sale would have been 1,695 MBF.

Another factor affecting timber sales on the Forest for the last couple of years relates to evolving national policies and interpretation of those dealing with roads. The development of a new transportation policy with the 18-month moratorium on road construction and reconstruction, elimination of purchaser road credit from all new sale offerings, and the President's Roadless Initiative have affected the Forest's ability to offer sales.

Yet another problem was the Forest's backlog of cultural surveys. Potential timber sale areas must be surveyed for cultural sites and or artifacts. Potential impacts to these resources are addressed and mitigation identified in the NEPA document. Surveys were scheduled for fiscal year 2000, however due to the fire situation in the west in the summer of 2000, the contracts were not advertised or awarded. Contracts for cultural surveys are to be offered in the spring/summer of FY2001.

The Ellsbury Timber Sale was appealed and remanded back to the Forest for additional NEPA analysis. This vegetative management proposal has changed significantly since the appeal and remand and is being reanalyzed in FY2001. It is scheduled for offering in FY2001.

The amount of vegetative treatment accomplished this year, and in past years, is of concern. Many of the stands of timber on the Forest are in declining health and would be classified as approaching late successional stages. These stands of timber are more susceptible to insect and disease attacks and to the risk of wildfire. Insect and disease activity is increasing on a forest wide basis and is anticipated to continue at an elevated rate.

The Shoshone National Forest does not have sufficient age and species diversity to provide healthy forests in the future. Tree mortality is increasing substantially and can be viewed from any travel way on the Forest. Loss of minor tree species, such as Aspen and narrow leaf cottonwood is occurring due to the invasion of conifer species through succession and lack of management. These issues need to be addressed in project level documents and in the revision of the Forest Plan.

2. Restocking of Clearcuts

The National Forest Management Act (NFMA) requires that where trees are harvested for timber production "the cuttings shall be made in such a way as to assure that the technology and knowledge exists to adequately restock the lands within five years after final harvest." For clearcuts that means five years after the clearcut occurs (36 CFR 219.27 sec. (c)(3)). This monitoring item was intended to ensure that clearcuts are restocked by the 5th year by requiring regeneration surveys one, three, and five years after the clearcut.

Except for power line right-of-way clearings and highway construction projects, there have been no clearcuts since 1992.

Evaluation

The majority of clearcuts on the Shoshone National Forest occurred before passage of the NFMA in 1976. Although regeneration surveys are not required for those acres clearcut before 1976, the Forest has spent considerable time evaluating, and surveying those acres in order to update records and evaluate past silvicultural treatments. Monitoring indicates that the majority of the clearcuts before 1976 that have been surveyed over the past four years fully meet the criteria for certification as fully stocked. In FY 2000, the Forest completed approximately 1,200 acres of regeneration surveys on the Wind River District.

3. Other Reforestation Monitoring

Personnel from the Forest's North zone (Clarks Fork, Greybull, and Wapiti Ranger Districts) completed approximately 2,925 acres of extensive reforestation surveys in fiscal year 2000 to prepare for outyear planting of whitebark pine on non-suited acres. These surveys took place on the Clarks Fork Ranger District predominantly in the 1988 Clover Mist wildfire area. **C**rews conducted additional survival and growth exams on 948 acres in fiscal year 2000.

Evaluation

First year survival percentages on units surveyed were very high this year due, most likely, to the fact that wet spring weather on the planting site came at the critical time. The 3rd and 5th year survivals surveys are anticipated to be significantly better than the areas surveyed in fiscal year 1999, due to the moisture we received during this year's planting season.

Some damage occurred in planted areas due to wildlife and domestic livestock eating or trampling seedlings. Overall, third year survival was good with all units above minimum stocking objectives.

4. Timber Stand Improvements

Timber stand improvement (TSI) is any vegetation management activity that improves the composition, condition, or growth of a stand of trees. This monitoring item requires that acres of TSI not vary more than 25% from what is planned annually. The Forest Plan projected 121 acres per year of TSI between 1991 and 2000 (Land and Resource Management Plan, Table III-1, page III-14). The following is a list of the acres of TSI projected by the Forest Plan and accomplished the last ten years:

Figure 6. Timber Stand Improvement 1991-2000

Year	Forest Plan Acres	Acres Treated	% Of Forest Plan
1991	**121**	**40**	**67**
1992	**121**	**407**	**336**
1993	**121**	**0**	**0**
1994	**121**	**140**	**115**
1995	**121**	**250**	**206**
1996	**121**	**117**	**97**
1997	**121**	**455**	**376**
1998	**121**	**937**	**774**
1999	**121**	**882**	**728**
2000	**121**	**0**	**0**
Ave.	**121**	**322**	**266**

Over the past 10 years, emphasis for TSI activities has been placed in cutover areas to enhance new stand growth by reducing competition on desirable species and to promote individual tree growth. Most of this work was achieved with TSI contracts inspected by Forest personnel. Payment to contractors is approved after they meet the minimum requirements of the contract and inspectors approve the units. Work crews complete TSI treatment under the guidance of a forester within this time frame. Contract inspectors and foresters, using daily diaries and inspection reports, monitored accomplishments for the period shown above.

The only TSI work accomplished on the Forest in 2000 was part of a contract awarded in fiscal year 1999. The listing of the Canada Lynx as a threatened species prompted identification of Lynx Analysis Units (LAUs) and potential Lynx habitat on the Forest. No new areas were contracted in fiscal year 2000 pending the completion of the mapping effort. In addition, a moratorium was placed on precommercial thinning per the Lynx Conservation Assessment and Strategy. Potential TSI areas will be evaluated against potential Lynx habitat to identify opportunities for thinning.

TSI surveys were conducted on approximately 279 acres of old cutover areas on the Forest this year. The majority of the surveyed acres showed a need for thinning to assure maximum growth of the stands and to protect against insects and disease that could infect these plantations or new stands of trees.

Evaluation

Between 1991 and 2000 the Forest accomplished approximately 266% of Forest Plan projected acres of TSI. It should be noted that some of these contracts are multi-year contracts, and therefore, acreage accomplishments will vary from year to year. In some years accomplishments may exceed the planned acreage target. One reason the Forest treated three times what the Forest Plan projected is that old clearcuts from the 1960s grew in and are now overstocked. These acres are in need of thinning.

TSI work on the Forest is anticipated to decline from recent levels due to the listing of the Lynx, but will be more consistent with Forest Plan projections. Evaluation of the areas outside of LAUs will begin in the fall and winter of 2000 and 2001. There are concerns about the potential decline of timber stand improvement work (TSI) on the Forest. If thinning (TSI) work ceases, merchantable growth of these stands will decline and they may become susceptible to infestations of dwarf mistletoe and commandra blister rust.

5. Growth Response

Growth response to vegetation management is monitored through stand exam surveys. Approximately 7,000 acres were inventoried for growth response on the north zone of the Forest in fiscal year 2000. On the south zone, 5,000 acres were inventoried using stand exams. New stand exam survey data will be used along with data gathered in prior years to revise the Forest Plan.

Evaluation

Growth response in planted stands surveyed on the north zone of the Forest (Clarks Fork, Greybull and Wapiti Districts) is meeting the expected growth potential. Stands on the south zone of the Forest (Washakie and Wind River Districts) that were clearcut in the 1960s and were surveyed for growth response after treatment are at least meeting, if not exceeding, the expected growth potential. However there is concern and evidence that residual stands adjacent to the treatment areas are heavily infected with dwarf mistletoe and commandra rust.

Treatment of the adjacent stands and thinning of the new stands are critical to maintain maximum growth potential and to reduce infection of mistletoe and commandra rust.

6. Size of Clearcuts

Clearcuts greater than 40 acres in size require the Regional Forester's approval. As mentioned in the Restocking of Clearcuts section above (item 2) no clearcuts have occurred on the Shoshone National Forest since 1992 with the exception of power line right-of-way clearings and highway construction projects. None of these activities have exceeded the 40 acre maximum size.

7. Lands Not Suited for Timber Production

Lands not included in the suited timber base may not be managed for wood fiber production but may be managed for other resource objectives. In some situations wood fiber is a by-product of resource management such as when openings are created for wildlife in a forested area. Forest Plan standards and guidelines specify permissible activities outside the suited timber base and are reviewed before activity occurs. This monitoring item was intended to guarantee that lands outside the suited timber base are managed for the appropriate resource objectives.

In fiscal year 2000, a tree-harvesting project was completed on the Wapiti District along the North Fork corridor on non-suited timbered lands. The project was designed to reduce hazard trees in the Newton Creek campground and remove insect infested and dying trees. This vegetation management project was accomplished using a timber sale contract.

Some of the reforestation accomplished in fiscal year 2000 is on non-suited lands where the 1988 Clover Mist Wildfire destroyed conifer stands. The objective of planting these areas is primarily restoration of hydrologic function, restoration of wildlife habitat, and improvement of vegetative diversity. Additional planting of whitebark pine was completed in fiscal year 2000 on non-suited lands. This planting is accomplishing two objectives: 1) to provide a food source for the grizzly bear, and 2) to reestablish whitebark pine that is blister rust-resistant in areas where this species was destroyed by the wildfires of 1988 and in areas where white pine blister rust has caused heavy mortality on this species.

Evaluation

The vegetaton management projects mentioned above, as well as highway reconstruction projects and power line right-of-way clearing, sometimes result in removal of timber from non-suited lands for reasons other than commercial timber production. The public may remove by-products from this type of project by obtaining permits or through contracts. Individuals, communities, and businesses neighboring the Forest utilize material such as fuelwood (commercial and personal use), post and poles, house logs, and sawtimber.

8. Forest Health

On the south zone of the Forest widespread infection of lodgepole pine by both commandra rust and dwarf mistletoe continues to severely affect the growth of stands. Stand exam surveys and routine field observations indicate that the reproductive potential of lodgepole pine may be at risk in many stands due to the proliferation of these diseases. Commandra rust kills the seed/cone producing portion of the tree, while dwarf mistletoe reduces vigor and the tree's ability to produce cones and eventually results in premature death. The fact that the majority of lodgepole pine have non-serotinous cones, or cones that open annually to release seeds, compounds the problem since the tree is not able to store seed in the previous year's cones.

Stands on the north zone of the Forest also have commandra rust and dwarf mistelote infestations though not to the extent found on the south zone. The north zone continues to experience epidemic levels of Douglas Fir Bark Beetles in several areas including the North Fork of the Shoshone River corridor between the forest boundary and the east gate to Yellowstone National Park. Large overstory trees in excess of 20 inches in diameter are most at-risk. This is affecting high use campgrounds like Newton Creek and Eagle Creek, as well as the majority of the large recreation corridors.

Evaluation

Most stands comprised predominantly of lodgepole pine, Douglas-fir, englemann spruce, limber, and whitebark pine are showing negative net growth rates, or mortality exceeding growth. As a result, accumulation of fuel from dead and dying trees has put these stands at a higher risk of wildfire. A catasptrophic disturbance, such as a large wildfire, may result in a dramatic reduction or loss of these species in the affected areas.

Conditions on the Forest in terms of forest health have changed since the original Forest Plan was written. Forested stands are older and the effects of prolonged infection are more evident in the form of increased net mortality. The loss of forested stands has the potential to affect all resources, from recreation to wildlife. This situation will need to be addressed during Forest Plan revision. A range of vegetative treatments including timber harvest and prescribed fire should be implemented.

Douglas Fir stands in the Newton Creek and Eagle Creek campgrounds will again be treated this summer through the use of disaggregation hormones that repel Douglas-fir bark beetles. This protection will continue until beetle levels in these areas return to endemic levels. It is recognized that this is a stop-gap measure.

It should also be noted that significant mortality is occuring along highway corridors that access the forest. Lodgepole pine, Douglas-fir, englemann spruce, subalpine fir, whitebark and limber pine are all being affected by one form or another of insects and dieases. As stated earlier, this is due to the age of the forest, and the increased levels of insects and disease activity.

Water Resources

1. Effects of Specific Resource Management Practices on Waters of the U.S.

Soil and water resource monitoring efforts in fiscal year 2000 were hampered by the wildfire season as staff was diverted to fire suppression and emergency watershed rehabilitation needs throughout the western United States. The monitoring that did occur was qualitative and performed between fire assignments as time permitted.

Programmatic monitoring related primarily to:

- Effects of the transportation system on soil productivity and stream health
- Effects of noxious weed invasions on soil productivity
- Effects of expanded recreation use on watershed health

Specific project monitoring related to timber harvest, livestock grazing, prescribed fire, wildfire, highway reconstruction and recreation. Database development and watershed awareness training were conducted in addition to the monitoring.

Considerable staff time went into accelerated implementation of the Natural Resource Information System (NRIS). This system will house soil resource inventory data, water rights information, water quality and stream health data, and watershed improvement inventory needs information. The system is expected to be completely on-line by the end of fiscal year 2001.

Forest watershed staff throughout the fiscal year gave informal watershed awareness training. A formal three-day training titled "Hydrology and Watershed Management" was given to approximately 40 agency and non-agency employees.

Evaluation

Concerns over erosion and sedimentation from the transportation system continue. Concerns relate not only to the existing system, but expansion of it, primarily from increased recreation use. The Forest is continuing condition inventories and building a reliable transportation layer in the GIS database (*see* Facilities and Recreation). The Forest also continues to address transportation system watershed concerns through implementation of the Watershed Improvement Needs Inventory (*see* Soils).

Noxious weed invasion continues to be a watershed health concern due to the potential deleterious effects such invasion can have on soil productivity and hydrologic processes. These concerns are being addressed through the Forest noxious weed program (*see* Range).

In addition to concerns relating to recreation expansion of the transportation system, other concerns exist due to increased recreation use. They are related to soil productivity and water quality impacts from both developed and dispersed use. Concerns should be addressed during

Forest Plan revision. In the interim, site-specific issues should be addressed as they arise and programmatic monitoring should continue.

Review of the Lodgepole II Timber Sale focused on compliance with requirements of the Clean Water Act 404 exemption for silvicultural activities and forest roads, Wyoming Non-Point Source Management Plan Silviculture Best Management Practices, and FSH 2509.25, Watershed Conservation Practices Handbook. This sale is primarily an over-the-snow operation whereby no new road construction occurred. The review demonstrated compliance.

Review of the Dick Creek Allotment focused on compliance with the Wyoming Non-Point Source Management Plan Grazing Best Management Practices and FSH 2509.25, Watershed Conservation Practices Handbook. The review identified concerns about utilization in riparian areas and uplands, trailing to, and bank damage to streams. Many of these concerns should be resolved once new water developments and the repositioning of unit fences are completed. This work was started in fiscal year 2000 and is scheduled to conclude in fiscal year 2001.

A burned area emergency rehabilitation (BAER) assessment was conducted on the Crow Creek Fire, Wapiti Ranger District, to determine if a watershed emergency existed. No emergency was identified. The Forest did decide to reactivate the Crow Creek portion of the former Silvertip Watershed Monitoring Project to monitor the effects of the Crow Creek Fire on stream flow, sediment transport, and water quality.

Watershed staff also monitored the Cabin Creek Fire, primarily related to a concern with the spread of noxious weeds (Dalmation toadflax). Concerns are being addressed through the noxious weed program (*see* Range).

Construction of the Laughing Pig section of the North Fork Shoshone River highway occurred throughout the fiscal year. Monitoring indicates compliance with watershed protection criteria was generally met. Minor concerns were identified and subsequently resolved.

Review of special use permit pastures identified concerns with livestock utilization and negative effects on watershed condition. The Forest is assessing the concern to determine if modifications to the permit are necessary.

2. Water Uses

New water right applications are reviewed to ascertain the requested use will not conflict with existing uses and rights, including instream flow needs quantified by the Big Horn adjudication. Potential conflicts are resolved either as the application is processed through the State Engineer's Office or through special use permit clauses once a right is granted.

Evaluation

No new water right applications were processed during the fiscal year.

Soil Resource

1. Soil Erosion

Soil erosion monitoring occurred on several projects during fiscal year 2000. This monitoring is qualitative and relates to the implementation and effectiveness of watershed conservation practices. Use of the WEPP (Water Erosion Prediction Project) model is increasing as soil resource inventory database work evolves.

Evaluation

Evaluation of this monitoring item may be found in the Water Resource section of this report.

2. Soil and Water Resource Improvement (Improved Watershed Conditions)

Watershed Improvement Needs Inventory
Implementation of projects listed in the watershed improvement needs inventory, which was updated in Fiscal Year 1999 and discussed in detail in last year's report, continued in fiscal year 2000. This inventory requires continual maintenance in that new projects need to be added to replace those that are implemented and subsequently removed.

Evaluation

Policy and budget changes that occurred during fiscal year 2000, as well as renewed emphasis on heritage resource clearance and protection, have temporarily jeopardized the development and implementation of future watershed improvement projects until the Forest can make requisite adjustments. The policy change relates to the administration of the forest transportation system (36 CFR Part 212), which now requires roads analyses before road decommissioning can occur. These analyses will require additional staff time and public involvement. A change in budget planning and execution from benefiting function to primary purpose is requiring adjustments in how projects to disconnect the transportation system from waters of the U.S. (streams and wetlands) are being implemented. The renewed emphasis on heritage resources is resulting in additional time needed to implement and accomplish watershed improvement projects. Necessary adjustments are expected to take one to two years.

Watershed Improvement Projects
Numerous watershed improvement projects were implemented during fiscal year 2000. The Forest continues to focus its efforts on reducing impacts of the transportation system on watershed condition, which is tiered to recent transportation and stream health assessments (reference past Monitoring and Evaluation Reports).

Evaluation

Major projects designed to disconnect roads from streams were implemented in the South Pass area of the Washakie District and the Gooseberry Creek area on the Greybull District.

Similar projects were planned for the Warms Springs Creek Road on the Wind River District and roads in the Sheep Point area on the Greybull District. These two projects were not implemented due to high fire danger closure orders and assignment of Forest personnel to the nationwide wildfire suppression effort that occurred during the latter part of the fiscal year. Implementation of these projects has been rescheduled to fiscal year 2001.

Monitoring of the Wapiti Ranger Station Bank Stabilization Project continued in 2000 in compliance with an Army Corps of Engineers 404 permit. The report is available at the Supervisor's Office.

Survey and design work for a bank stabilization project on the Wind River near the Tiehack Memorial continued during the fiscal year. This project is scheduled for implementation in fiscal year 2001.

Monitoring of the road disconnection projects and the Wapiti bank project indicate they have been effective in improving watershed condition.

3. Soil Survey

Work on a soil resource inventory that began in 1989 and covers the Clarks Fork, Wapiti, Greybull, and Wind River Ranger Districts continued in fiscal year 2000. This inventory is being conducted in cooperation with the Natural Resource Conservation Service (NRCS) and their national soil survey program.

The Washakie Ranger District was originally surveyed in 1981. This older survey was scheduled for remapping early in the present inventory, but funding was shifted into other regional priorities. In lieu of remapping the Washakie District, the Forest is now modifying the 1981 survey as part of the Integrated Resource Inventory (IRI). IRI work also involves efforts to match the Shoshone soil survey information with other soil resource inventories in the Greater Yellowstone Area.

Evaluation

As discussed in last year's report, the fieldwork portion of the soil resource inventory is complete. Map and database development was scheduled to conclude in fiscal year 2000; some of that work was not completed. Completion is now scheduled for fiscal year 2001. Once completed, the final step in the inventory will be certification by the NRCS.

Modifications to the existing Washakie District survey are also scheduled to be completed in fiscal year 2001.

Minerals

Compliance with Terms of Operating Plans and Consistency with Forest Plan

1. Leasable Minerals

In 1987 Congress passed new laws regulating oil and gas leasing. Both the USFS and BLM then promulgated new regulations governing oil and gas leasing. As a result of the new laws and regulations the Shoshone National Forest prepared an Environmental Impact Statement (EIS) to amend the 1986 Forest Plan to include provisions of the 1987 law. The EIS was completed in 1992 and a Record of Decision (ROD) approved in December of 1995. From April of 1990 until the approval of the ROD no leasing was taking place on the Forest.

One Application for Permit to Drill (APD) was received in 1999, the Scott Well #2 exploratory well. The proponent for the APD requested that the Forest perform the necessary NEPA analysis. The proposed action was initially incorporated into the Ramshorn Vegetation Management Analysis but is now a separate project due to a delay in the remainder of the Ramshorn project. Analysis was begun in 1999 and will continue into fiscal year 2001.

Evaluation

Based on available information there were approximately 14,521 acres under lease on the Shoshone National Forest at the end of the fiscal year. This represents an estimated one percent of the acres made available for lease (954,300) by the Oil and Gas EIS, Record of Decision.

Monitoring of reclamation efforts on the Lava Mountain well pad continued in fiscal year 2000. Last year the area was seeded with native grasses and planted with five foot lodgepole pine transplants at a 40 ft X 40 ft spacing with moderate success. The leaseholder, in coordination with the Forest, performed additional work in the area in fiscal year 2000. Work included planting moe trees on the site as required by the revised reclamation plan, and additional work on a road closure in the area.

On-site requirements will have been met if the regeneration of trees is successful. First year regeneration survival was at or near 100%. The site will be inspected in the spring of fiscal year 2001. If tree survival is satisfactory the revegetation plan will be completed on the site and all requirements of the reclamation efforts will have been met. The well pad reclaimed site was inspected by the Forest Leadership Team on September 26, 2000.

2. Common Variety Minerals

One free use permit, issued to the State of Wyoming Department of Transportation, was processed in fiscal year 2000 for 317,358 tons of material. The majority of the material was used in the reconstruction of the North Fork Highway between Cody, Wyoming and the east

gate of Yellowstone National Park. In addition, some of the material was also used to repair and resurface a portion of the Beartooth Highway.

Evaluation

Commercial interest in rock material, especially decorative rock, is increasing on the Wind River and Washakie Ranger Districts. Residential development in Teton County and the Jackson Hole area is generating a significant demand for this type of material. As the cost of building materials increases it is expected that there will be a growing demand for the use of the Forest as a source of rock and gravel material.

Facilities

1. Road Construction/Reconstruction (Local, Arterial, Collector)

This monitoring requirement allows a 25% deviation from the planned accomplishment for road construction and reconstruction. Figure 7 lists the Forest Plan projections for collector and local road construction and reconstruction:

Figure 7. Projected road construction/reconstruction 2001 - 2010

Activity	Collector (Miles)	Local (Miles)
Road Construction	**1.1**	**3.4**
Road Reconstruction	3.5	4.0

In fiscal year 2000, no new local roads were constructed or reconstructed. Three miles of collector roads were reconstructed. The work performed in fiscal year 2000 represents 0% of the average annual for new local road construction, 0% of the average annual local road reconstruction, and 86% of the average annual for collector road reconstruction projected in the 1986 Forest Plan.

Evaluation

Deviations from Forest Plan projections continue to occur. The road construction and reconstruction programs on the Forest have been almost totally dependent on the timber sale program. Roading for support of the timber program is kept to an absolute minimum necessary to harvest timber and protect the surrounding resources. For various reasons, timber sales with proposed roadwork have not sold. The trend away from new construction and into reconstruction also reflects the results of the no net increase in new roads policy of the Forest.

In the next few years, local and national emphasis on correcting erosion-related problems from Forest Service roads will continue. Both the interagency Clean Water Action Plan and several national Forest Service initiatives emphasize heavy road maintenance and reconstruction to meet Clean Water Act objectives. It is anticipated that heavy maintenance and road reconstruction on local and collector roads will increase and continue at levels close to or above Forest Plan predicted averages. The national roadless policy has and will continue to affect the Shoshone National Forest's timber program and road construction program.

As mentioned in monitoring and evaluation reports over the last few years, it is recommended that the Forest re-evaluate the number of miles of new and reconstructed roads needed to support the timber program, and to be consistent with the roadless policy, and the new national road policy.

2. Roads Closed (System Miles Closed by Project Activities)

In fiscal year 2000, no local roads were closed after completion of timber sale activities. At the end of fiscal year 2000, there was an inventoried total of 120.8 miles of closed road on the Forest.

Evaluation

Table III-1 in the Forest Plan estimates 99 miles of closed road on the Shoshone National Forest each year. This change in inventoried miles reflects a concentrated effort to inventory and correctly classify roads on the Forest. It was discovered through inventory that some of the roads that were previously listed as closed (Level 1) do not exist, were double-counted in the inventory, or re-inventoried as unclassified roads under the definitions of the new national roads policy.

The inventoried numbers of closed miles indicate that the Forest is at 122% of its average annual accomplishment. As indicated in the fiscal year 1999 report, this indicates that the Forest needs to continue to look at its closed roads and evaluate them for decommissioning as roads.

3. Roads Obliterated (Road Miles Obliterated by Project Activities)

The number of miles of new National Forest Service Road (FSR) constructed is measured against road miles decommissioned. For each running five-year period beginning October 1, 1994 the cumulative number of new miles of FSR constructed should not exceed the cumulative number of miles of road decommissioned in the same five-year period of time.

In fiscal year 2000, 4.2 miles of road were decommissioned. The Forest Plan (Amendment 94-001) projects an average annual of 4.5 miles for decommissioning. In fiscal year 2000, the Forest met 93% of that projection. The five-year average for decommissioning is 10.6 miles and the average since 1988 has been 7.8 miles per year.

At the end of fiscal year 2000, the five-year total of roads constructed minus roads decommissioned was a negative 48.9 miles. This means that over the past five years, 48.9 more miles of road have been decommissioned than were constructed.

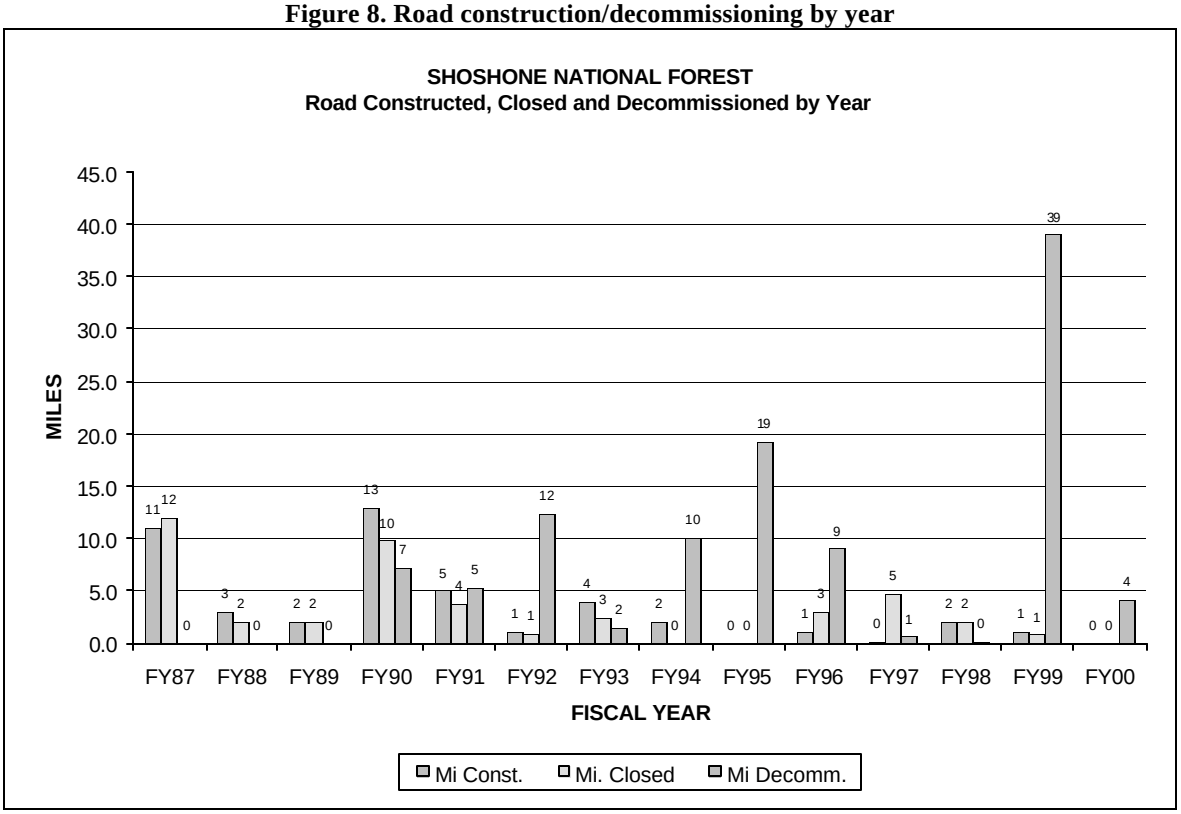
Evaluation

The Shoshone National Forest was within the allowable variability of ±15% of the average annual for this item. The Forest is committed to an orderly process of road decommissioning. New national road policies emphasize decommissioning of existing roads no longer needed for administration of National Forest lands. The interagency national Clean Water Action Plan also emphasizes road decommissioning for watershed protection. In addition, national Forest Service initiatives emphasize road decommissioning. It is anticipated that the Forest

will continue an aggressive program of road decommissioning and that the number of miles of roads decommissioned will generally exceed the miles projected in the Forest Plan.

The following chart summarizes roads constructed, obliterated, and closed on the Forest.

Figure 8. Road construction/decommissioning by year



4. Level 1 Road Maintenance (Miles of Level 1 Maintenance Accomplished)

Level 1 (closed) road maintenance was performed on 90 miles of forest development roads in fiscal year 2000. No deficiencies in the closures of these roads were reported. The Forest Plan predicted an average annual output for Level 1 maintenance of 304 miles. Actual miles maintained were 30% of this total.

Evaluation

Because priority is given to the Level 3, 4, and 5 roads where public health and safety are a significant concern, Level 1 roads are the lowest priority for maintenance. Current budgets do not allow for road maintenance activities at levels estimated in the Forest Plan. The Forest has adopted a policy of completing at least 25% of the Level 1 road maintenance each year. This goal is more attainable than full maintenance on all Level 1 miles each year, and was met in fiscal year 2000.

National policy for deferred maintenance requires a condition survey on each mile of road once every five years (20% per year). The most recent protocol requires a survey on all level 3, 4, and 5 roads in the first year and a survey of the remaining Level 1 and 2 roads during the following four years. This policy was implemented in fiscal year 2000 for the Forest's Level 1 and 2 roads. The deferred maintenance surveys of Level 1 roads meet the basic Level 1 road maintenance criteria.

During Plan revision, the average annual output for Level 1 road maintenance should be changed to meet national requirements.

Air Resource

Effects of Other Resources on Air Quality and Air Quality Related Values

Precipitation samples and weighing rain gauge charts were collected every Tuesday at the National Atmospheric Deposition (NADP) site near South Pass City, Wyoming. Some sample analysis (e.g. - pH and conductivity tests) was performed in the Lander office laboratory. Consistent with NADP sampling protocol, samples were then sent to the Central Analytical Laboratory in Illinois for further chemical analyses. Data has been collected at this site since 1985 and is available at the NADP website (http://nadp.sws.uiuc.edu).

Air quality related values (AQRVs) were monitored at two lakes in Class I and Class II wilderness areas: Ross Lake in the Fitzpatrick Wilderness and Lower Saddlebag Lake in the Popo Agie Wilderness. This monitoring is being conducted to assess the effects of acid deposition on water quality. Water samples, as well as zooplankton and macroinvertebrate samples, were collected at both lakes. Each lake is sampled three times between early summer and late fall.

The Bridger-Teton National Forest also collects bulk deposition (precipitation) samples at Hobbs and Black Joe lakes in the Wind River Mountains. These data have been collected since 1986. Data from bulk deposition sampling is displayed in annual summary reports submitted to the Wyoming Department of Environmental Quality (DEQ).

The National Outdoor Leadership School (NOLS) performed additional AQRV wilderness lake sampling for the Forest Service at eight lakes in the Wind River Mountains. This work consists of one-time sampling during summer months to determine baseline chemistry in an effort to identify low alkalinity lakes. Sampling follows Environmental Protection Agency (EPA) protocols.

In January 2000, an IMPROVE (Interagency Monitoring of Protected Visual Environments) station was installed at Dead Indian Pass, financed by the State of Wyoming. This station includes aerosol monitors and a nephelometer. Aerosol filters are changed weekly and sent to the University of California at Davis for analysis. Data are then quality assured by the National Park Service and made available to the public. IMPROVE program staff have developed a website to share collected information with federal and state agencies and to provide information to the public. The URL for this site is http://vista.cira.colostate.edu/improve/.

The Forest Service reviewed NEPA work being conducted by the BLM for proposed large-scale oil and gas developments in southwest Wyoming, developments that may have a direct impact on Class I areas in the Wind River Mountains. Two large projects, the Continental Divide/Greater Wamsutter II natural gas development and the Pinedale Anticline oil and gas development, were authorized for development in 2000. The Forest Service was a cooperating agency during the completion of the air quality analysis for the Pinedale Anticline project.

The Forest Service is also involved with the Greater Yellowstone Area Clean Air Partnership (GYA-CAP), established to identify and address key issues relating to air quality in the Greater Yellowstone Area. The partnership allows for an exchange of information and improved dialog between state and federal agencies working in the GYA.

Evaluation

The South Pass NADP site is funded primarily by SF Phosphates as part of their Wyoming DEQ Prevention of Significant Deterioration (PSD) permit. Summaries and trend analysis for this and other NADP sites are available on the Internet at http://nadp.sws.uiuc.edu.

DEQ and other agencies continually analyze these data. Cursory analysis shows a trend toward increasing levels of NO_3 and inorganic nitrogen in recent years. SWWYTAF has incorporated NADP data into the CALPUFF model, which is used to track emissions and acid deposition across southwestern Wyoming. The Forest will continue monitoring this important site.

Based on current data, there does not appear to be a trend in the chemical composition of the lakes being sampled. However, because these lakes are sensitive and susceptible to change from acid deposition, the Forest will continue monitoring both lakes. Continued monitoring of these lakes will allow for development of a sufficient database to allow for quality statistical analysis where general trends might indicate increased nitrate, sulfate, and phosphate concentrations as well as increased acidification. A need to monitor additional sensitive lakes in future years may be necessary as additional data from the existing lakes is collected and analyzed.

Data from the Bridger-Teton bulk deposition sampling indicates a general trend of increasing total nitrate deposition (in kg/ha/yr).

The synoptic lake sampling conducted by NOLS identified several very sensitive lakes in the Wind River Mountains with acid neutralizing capacities (ANCs) of less than 25, which makes these lakes some of the most sensitive in the nation. These same lakes may be monitored again in a few years to determine if any changes are taking place.

Bridger-Teton Forest personnel are entering AQRV lake monitoring data from the Shoshone National Forest into the Natural Resource Information System (NRIS) air module. This information will be available in the future on an Internet site. These data continue to be evaluated by personnel at the National Biological Survey at Colorado State University in Fort Collins, Colorado.

The IMPROVE site at Dead Indian Pass will continue to be operated. It will take approximately three years to develop baseline data for the site, at which time additional monitoring will help detect changes in air quality.

The lake data from the Wind River Mountains has been used in the Southwest Wyoming Technical Air Forum (SWWYTAF) CALPUFF modeling efforts to provide calibration points for the model. Future SWWYTAF efforts may involve the incorporation of the MAGIC model (Model of Acidification of Groundwater in Catchments), which predicts the effects of acid deposition on sensitive high elevation lakes.

The Continental Divide/Greater Wamsutter II natural gas development is located between Rock Springs and Rawlins, Wyoming. The development of 1065 wells and associated ancillary facilities has been authorized by the BLM. Air quality modeling suggests no impact would occur from this project alone. However, the cumulative impact of this project and other development which is either occurring or will occur in the reasonably foreseeable future could potentially impact visibility in the Rawah and Savage Run Class I wilderness areas one to two days per year at the 0.5 deciview level.

The Pinedale Anticline oil and gas development is located on the west side of the Wind River Mountains near Pinedale, Wyoming. The development of 700 wells over the next ten to fifteen years has been authorized by the BLM. Air quality modeling, conducted to assess the effects of this development on adjacent Class I and Class II wilderness areas, suggests no impacts would occur from this project alone. However, modeling suggests the cumulative effects of this project, coupled with existing emissions and potential emissions from reasonably foreseeable future projects, could potentially impact the adjacent wilderness areas. For the scenario with the highest development and emission rates, modeling indicates visibility impairment could occur from 11 to 15 days per year at the 0.5 deciview level, affecting the Bridger and Fitzpatrick Class I wilderness areas, the Wind River Indian Reservation Roadless Area and Popo Agie Class II wilderness area. However, because project proponents financed the installation of low NO_x burners at the Naughton power plant near Kemmerer, Wyoming, and reduced their permitted levels of NO_x emissions by 1,000 tons per year, the Forest Service believes this off-site mitigation is sufficient to offset the modeled impacts. The Forest Service is actively involved with the BLM's Adaptive Environmental Management Process (AEM) to monitor the actual effects of this development on air quality, and to validate the modeling that was done for this project.

Protection

1. Fuels Treatment Target

The fuels treatment program on the Shoshone National Forest involves reduction of both management activity-generated fuels and natural fuels. Activity fuel reduction focuses on activities which generate wood debris such as logging, tree thinning, and road right-of-way clearing. Natural fuel reduction focuses on vegetation exceeding natural volumes based on the assumption of natural disturbances and agreed-to thresholds. Forest Plan standards and guidelines for activity-generated fuel provide direction to reduce or treat fuels so the potential fireline intensity will not exceed 400 BTUs/sec/ft (4 ft flame length) on 90% of the normal fire season. There is also direction to isolate continuous fuel concentrations or provide additional protection. The measurement frequency for natural and activity fuel treatment is the annual planned target +/- 25%.

Evaluation

In fiscal year 2000 the Forest had a target of 4,000 acres of natural fuel treatment. Eighty-seven percent of the natural fuel target was completed. All activity fuel treatments satisfied the Forest Plan standards and guidelines. Also, specific project goals and resource objectives were evaluated for each fuel reduction project. Using the same measurement frequency, all goals and objectives for fuels treatment projects were satisfied.

In fiscal year 2001 treatment is planned for 5,500 acres of natural fuels (+/- 25%). The criteria for treating activity-generated fuels are the fire behavior parameters as described in the Forest Plan Standards and Guidelines (Shoshone National Forest Land and Resource Management Plan, Chapter III, page 97). BEHAVE, a fire behavior prediction and modeling system, will be used to determine measures of fire intensity such as BTUs and flame length.

Recommendations

A review of the Forest Plan is suggested to ensure the appropriate level of soil, water, and air protection is being afforded. It is recommended that this review occur as part of Forest Plan revision.

2. Fire Management Effectiveness Index

Monitoring fire management effectiveness involves measuring the relative effectiveness of fire protection by comparing funds spent on suppression to resource loss. The model used to determine the best combination of firefighting resources to achieve the least resource loss is the National Fire Management Analysis System (NFMAS). The current method of measuring effectiveness is based on a 1999 analysis. The 1999 analysis was not expected to take effect until fiscal year 2003, however with congressional direction to fund units at the most efficent level the analysis will be initiated in fiscal year 2001.

Evaluation

The most efficient level of fire protection capability for the Forest based on the 1999 analysis was $907,314 (1999 dollars). The Forest received $518,700 or 60% (MEL-60) of that in fiscal year 2000, meaning fire prepardness and production cababilities fell short of the most efficient level.

The fiscal year 2001 preparedness and production capabilites for fire suppression will be evaluated in the same manner as fiscal year 2000. The most effective fire protection is 100% funding at the most efficient fire prepardness level (MEL).

Recommendations

As discussed in the 1998 Monitoring and Evaluation Report, terminology in Forest Plan standards and guidelines, Fire Protection and Appendix F of the Forest Plan is not consistent with current terminology adopted after the Federal Wildland Fire Management Policy & Program Review (1995) and the Wildland and Prescribed Interagency Fire Management Policy (1998). As an example, "prescribed natural fire" has been replaced with "wildland fire use for resource benefits" and "control/contain/confine" strategies no longer represent types of management strategies. A review of the Forest Plan is recommended for consistency with the newly adopted fire policy. Outdated terminology should be replaced with new terminology.

The Absaroka Beartooth Wilderness Fire Management Plan, 1993, allows prescribed natural fires on the Shoshone National Forest portion of the wilderness. The wilderness fire plan is not addressed in the Forest Plan so it is unclear whether the wilderness fire management guidelines are incorporated into the LRMP.

A review of the LRMP is also recommended to ensure appropriate guidelines from the Absaroka-Beartooth Wilderness Fire Management Plan are incorporated into the plan.

The use of wildland fire to benefit resources is a management strategy currently reserved for wilderness lands (*see* Shoshone LRMP, Appendix F). That is, natural fires may be used as a tool to meet or satisfy resource objectives as long as the fire is managed within specified parameters. It is recommended that the Forest assess the value of natural fire ecology on lands other than wilderness areas during Forest Plan revision.

IDT Review And Recommendations

The fiscal year 2000 monitoring program was reviewed by an interdisciplinary team (IDT). In general, the team found that the Forest Plan is valid and reasonably up to date. Many of the recommendations made here relate to changes in conditions, policy, or use that have occurred since the 1986 Forest Plan was published and that are therefore, not reflected in it. Others relate to projections made in the original Forest Plan that have not been met due largely to lower than estimated funding levels. These recommendations will be addressed during the Forest Plan revision process.

In addition, over the past several years Forest specialists have articulated the need for a more integrated ecosystem approach to monitoring than currently exists in the Forest Plan.

As of this writing, the process of revising the Shoshone National Forest Plan has not been initiated. The Washington Office has not allocated funds for revision. If revision of the plan continues to be postponed, the Forest Supervisor may consider a Forest Plan amendment.

The following are recommendations made in this report.

- Place additional emphasis on planning for off-highway vehicle use.

- Reevaluate the Forest Plan for direction and projections made for cultural resource accomplishments such as completion of cultural inventories. Make goals more consistent with available resources.

- Reexamine Forest Plan direction relative to roads and update goals and projections for miles of new and reconstructed roads, miles of roads closed, and miles of decommissioned roads (obliteration).

- The average annual output for Level 1 road maintenance should be updated to meet national requirements.

- Review Forest Plan to ensure the appropriate levels of soil, water, and air protection are being afforded in light of increased use of prescribed fire as a management tool.

- Reevaluate Forest Plan direction on number of acres on which to apply wildland fire management for resource benefit (Fire Use) within the Fitzpatrick and Popo Agie Wilderness Areas. Adopt a dynamic procedure to determine the appropriate acres on which fire management can be applied.

Status Of 1999 Recommendations

The 1999 Monitoring and Evaluation Report contained a number of interdisciplinary team recommendations based on that year's monitoring. Some of those recommendations are also in this year's report. Recommendations include changes to the Forest Plan that could be addressed through amendment or revision. The following is a summary of the 1999 recommendations and how they are being addressed.

Addressed during Forest Plan Revision or through amendment:

- Resolve conflict between Forest Plan management area allocation and direction and scenic byway management requirements using corridor planning.
  Status: Addressed in Scenery Management System currently under development, through project level forest plan amendments

- During revision, "management of trails for the intended use" must be reexamined and updated. The use of many non-wilderness trails has changed since the original Forest Plan but direction for management has not.
  Status: Revision

- Reevaluate the Forest Plan for direction concerning the conservation of the Canada Lynx. Incorporate direction from The Lynx Conservation Strategy as appropriate.
  Status: The Shoshone Forest Plan will be amended in fiscal year 2001 to incorporate Lynx conservation direction.

- Update Appendix G of the Forest Plan during revision to reflect adjustments made in watershed restoration and maintenance priorities and the 5-year action plan.
  Status: Revision

- Develop a way to address excessive bank damage along "E" stream types in meadow areas as a result of ungulate grazing. This is occurring even when overall use is within Forest Plan Standards and Guidelines. Integrate Watershed Conservation Practices (WCP) handbook in new Forest Plan, permit clause through range EA.
  Status: Revision

- Reevaluate the number of miles of new road construction and reconstruction projected in the Forest Plan. We are currently deviating from Forest Plan projections.
  Status: Revision

- The average annual output for Level 1 road maintenance should be updated to meet national requirements.
  Status: Revision

- Review Forest Plan to ensure the appropriate levels of soil, water, and air protection are being afforded in light of increased use of prescribed fire as a management tool.
  Status: Revision

- Replace old fire terminology in Forest Plan with terminology in newly adopted fire policy.
  Status: Revision

- Ensure the appropriate guidelines from the Absaroka-Beartooth Wilderness Fire Management Plan are incorporated into the LRMP.
  Status: Revision

Will be addressed through implementation:

- The minimal amount of vegetative treatment accomplished in fiscal year 2000 and the declining health of many of the timber stands on the Forest are of concern.
  Status: Forest health is being addressed through prescribed fire and will also be addressed during revision.

- Evaluate closed roads and decommission those that are unneeded.
  Status: Forest roads are being evaluated through both the project level and forestwide Roads Analysis Process and through watershed assessments**.**

- The Roadless Initiative has the potential to affect approximately 26% of the Forest's suitable timber base. If a national decision is made that would limit further vegetation treatment, the Forest Plan should be amended or revised to reflect the change.
  Status: Roadless Initiative will be implemented but additional public scoping is currently underway.

List Of Preparers

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Greg Bevenger, Hydrologist	Air, Water, and Soil Resources
Susie Douglas, Writer/Editor	Editing
Dennis Eckardt, Forester	Timber Resources
Dennis Eckardt, Minerals Staff	Minerals
Jim Fischer, Forest Engineer	Facilities
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Kent Houston, Soil Scientist	Soils, Noxious Weeds
Allen Madril, Archeologist	Cultural Resources
Brad Russell, Range Conservationist	Range
Chiara Palazzolo, Landscape Architect	Visuals
Dave Sisk, Fire Mgmt Officer	Protection
Olga Troxel, Land Mgmt Analyst	Forest Plan Budget, Edits and Coordination
Jennifer Watson, Lands Specialist	Recreation (Downhill Ski Use)
Ray Zubik, Fisheries Biologist	Wildlife & Fish, Riparian Condition
Gary Reynolds, Recreation Staff	Recreation, Wilderness

Fiscal Year 2001 Monitoring Plan

Introduction
Chapter IV of the Shoshone National Forest Land and Resource Management Plan (page IV-1) states that "an annual monitoring program will be prepared as part of the Forest's annual work program. This program will include the details displaying amount and location of monitoring to be accomplished. This will be based on the approved work program and funds available for monitoring." The results of the annual monitoring program will be documented in an annual monitoring report. The report is aimed at the Forest management team, provides the decision makers with information about the Forest's progress towards achieving the goals outlined in the Forest Plan, and identifies any needs for amendments to or revisions of the Forest Plan.

The following monitoring plan represents the Forest's monitoring priorities for 2001. The monitoring plan assumes no interruptions to this year's program of work by activities such as a severe fire season, appeals or lawsuits, or other unforeseen circumstances that would divert personnel and funds away from fieldwork**.**

Air Resource

Monitoring Requirement: Air Quality
Responsibility: Liz Oswald
Due Date: ***March 1, 2002***
Data Source: Deposition samples collected at a National Atmospheric **Deposition site.**
Funding/Personnel: Funding is from watershed management dollars. Monitoring is conducted by one GS-9 hydrologist.

Monitoring Requirement: Air Quality
Responsibility: Liz Oswald
Due Date: March 1, 2002
Data Source: Air Quality Related Values (AQRV) Wilderness Lake Sampling. Parameters sampled are water quality, macro invertebrates, and zooplankton. Also sampling vegetation and soils in one watershed for MAGIC computer model**.**
Funding/Personnel: Funding is from watershed management dollars. Monitoring is conducted by one GS-9 hydrologist**.**

Monitoring Requirement: Air Quality
Responsibility: Liz Oswald
Due Date: March 1, 2002
Data Source: Air Quality Related Values (AQRV) Wilderness Lake Sampling, Synoptic Survey of low alkalinity lakes. Samples to be collected by the National Outdoor Leadership School (NOLS), under the direction of the Forest Service

Funding/Personnel: Funding is from watershed management dollars. Monitoring is conducted by one GS-9 hydrologist**.**

Plan Budget

Monitoring Requirement: Actual Costs of Applying Management Direction from Forest Plan
Responsibility: Forest Analyst and Budget & Finance Person
Due Date: March 1, 2002
Data Source: **Program Accounting and Management Attainment Reporting System**

Funding/Personnel: 5 person-days, GS-7 and 2 person-days, GS-11

Cultural

Monitoring Requirement: National Register of Historic Places - Listed Sites
Responsibility: Archeologist
Due Date: Sept. 30, 2001
Data Source: Visual assessment of site conditions at 10 sites
Funding/Personnel: Program cost: $2,500.

Monitoring Requirement: National Register of Historic Places - Eligible Sites
Responsibility: Forest Archeologist
Due Date: Sept. 30, 2001
Data Source: Visual examination of 20-25 sites that have been determined eligible to the National Register. Also update of site forms and reevaluation in case of some early designated sites.
Funding/Personnel: Program Cost $3,500.

Monitoring Requirement: Range Permit Issue MOU
Responsibility: Forest Archeologist
Due Date: March 1, 2002
Data Source: Visual examination of areas identified as having high potential for heritage resources and high probability of impacts associated with livestock grazing. (MOU between Forest Service, Advisory Council for Historic Preservation, National Council of State Historic Preservation Officers, Wyoming State Historic Preservation Office.
Funding/Personnel: Cost to Forest Service: $20,000

Facilities

Monitoring Requirement: Road Construction

Responsibility: North & south zone Engineering
Due Date: March 1, 2002
Data Source: Annual MAR and FRP Accomplishment Reports, Roads Report
Funding/Personnel: 1 person-day for Civil Engr Techs (2), 1 person day for Engineer.

Monitoring Requirement: Road Reconstruction
Responsibility: North and south zone Engineering
Due Date: Nov. 1, 2001
Data Source: Annual MAR and FRP Accomplishment Reports, Roads Report
Funding/Personnel: 1 person-day for Civil Engr Techs (2), 1 person day for Engineer.

Monitoring Requirement: Roads Closed (system road miles closed by project activities)
Responsibility: North and south zone Engineering, Rangers
Due Date: Nov. 1, 2001
Data Source: ROADS Report, Project Work Plans, Annual MAR report.
Funding/Personnel: 1 person-day for Civil Engr Techs (2), 1 person day for Engineer, GM13, .5 person days for Rangers.

Monitoring Requirement: Roads Obliterated (system road miles obliterated by project activities)
Responsibility: North and south zone Engineering, ID teams.
Due Date: Nov. 1, 2001
Data Source: Annual FRP and MAR reports, Project Work Plans, EA/DNs.
Funding/Personnel: 1 person-day for Civil Engr Techs (2), 1 person-day for Engineer, .5 person-days for each Deciding Officer.

Monitoring Requirement: Level 1 Road Maintenance (Miles of Level 1 maintenance performed)
Responsibility: North and south zone Engineering, WOC temp crew, 2 person-days Hydrologist/Fish Biologist.
Due Date: Nov. 1, 2001
Data Source: Annual MAR reports, completed project work plans, WOC crew field records.
Funding/Personnel: 58 days GS9 Engr. Tech, 20 days GS7 Engr. Tech, 27 days GS9 Engineer, 3 days Engineer, 11 days GS9 Forestry Tech., 10 Days Hydrologist, 60 days GS-5 hydro Techs.

Minerals

Monitoring Requirement: Notice of Intentions, Plan of Operations, Application of Permits, and Other Mineral Special Use Permits
Responsibility: Forest Minerals Staff Officer
Due Date: January 15, 2002

Data Source: filed Notices of Intentions, Plan of Operations, Applications for Permits to Drill, and Mineral Materials Special Use Permits.
Funding/Personnel: .5 person - year for Forest, GS-11

Range

Monitoring Requirement: Grazing Use
Responsibility: Joe Hicks
Due Date: March 1, 2002
Data Source: Annual Grazing statistical reports, grazing permits, records.
Funding/Personnel: 3 days GS-11

Monitoring Requirement: Forage Utilization
Responsibility: Joe Hicks
Due Date: March 1, 2002
Data Source: Field exams
Funding/Personnel: 3 days GS-11

Monitoring Requirement: Range Condition and Trend
Responsibility: Joe Hicks
Due Date: March 1, 2002
Data Source: range analysis field exams
Funding/Personnel: 20 days GS-11

Monitoring Requirement: Noxious Weed Surveys
Responsibility: Invasive Plant Coordinator
Due Date: March 1, 2002
Data Source: Invasive Plant Surveys
Funding/Personnel: 20 days GS-11

Recreation

Monitoring Requirement: Off-road Vehicle Use of Designated Travelways
Responsibility: North and south zone Recreation Coordinators
Due Date: March 1, 2002
Data Source: Citations, warning notices, ranger observations/notes/photos; inventoried orv use areas and access points would be the focus for monitoring, regularly used off-road areas would be prioritized.
Funding/Personnel: This item is monitored continuously by District personnel. Approximately .5 person-year for Forest, GS-4-11s; and 2 person-days, GS-11

Monitoring Requirement: Trail Condition
Responsibility: North and south zone Recreation Coordinators
Due Date: March 1, 2002
Data Source: Deferred Maintenance condition surveys on 20% of Forest trails per year for the next 4 years. Forest priority.
Funding/Personnel: Approximately $50,000.

Monitoring Requirement: Dispersed Campsite Condition and Trend (monitoring of this item is focused on trend)
Responsibility: North and south zone Recreation Coordinators
Due Date: March 1, 2002
Data Source: Visual observations incidental to other regular work and photo documentation. Inventoried orv use areas and access points would be the focus for monitoring, and regularly used off-road areas and road termini would be prioritized.
Funding/Personnel: Dispersed areas along roads - 80 days for GS-5 and GS-6.

Monitoring Requirement: Developed Site Use
Responsibility: North and south zone Recreation Coordinators
Due Date: Nov. 1, 2001
Data Source: Fee collection data
Funding/Personnel: 10 person-days, GS-4-7s, 4 person-days GS-9

Monitoring Requirement: Developed Site Condition
Responsibility: North and south zone Recreation Coordinators
Due Date: March 1, 2002
Data Source: Deferred Maintenance condition surveys, Infrastructure inventory.
Funding/Personnel: 10 person-days, GS-4-7s, 4 person-days, GS-9.

Monitoring Requirement: Downhill Skiing Use
Responsibility: Jennifer Watson
Due Date: March 1, 2002
Data Source: Permittee supplied use statistics, resort inspections
Funding/Personnel: 15 person-days for Forest, GS-9, 5 person-days, GS 11.

Monitoring Requirement: Trail Construction/Reconstruction
Responsibility: North And South Zone Recreation Coordinators.
Due Date: March 1, 2002
Data Source: MAR Reports
Funding/Personnel: negligible

Threatened, Endangered And Sensitive Species

Monitoring Requirement: Grizzly Bear Mortalities
Responsibility: Forest Supervisor, TES Biologist
Due Date: March 1, 2002
Data Source: Interagency Grizzly Bear Study Team and Montana Fish, Wildlife and Parks annual reports.
Funding/Personnel: 2 days GS-12 (Approximately $500)

Monitoring Requirement: Compliance with Interagency Grizzly Bear Guidelines
Responsibility: Forest Supervisor, District Rangers, team leaders, project biologists, TES Biologist.

Due Date: March 1, 2002
Data Source: Project Biological Assessments and consultation with U.S. Fish and Wildlife Service, grizzly bear compliance patrol reports, law enforcement reports, IGBC grizzly Bear Conflict Annual Report.
Funding/Personnel: Above noted personnel and district compliance personnel (approximately $20,000).

Monitoring Requirement: Grizzly Bear Habitat Effectiveness
Responsibility: Forest Supervisor, TES Biologist
Due Date: March 1, 2002
Data Source: Grizzly Bear Cumulative Effects Model (CEM) and the IGBC access analysis process. (NOTE: Completion of this monitoring item is dependent on the following. CEM was run on the Forest in 1996 and model validation and testing is in process. CEM will be run again on the Forest as soon as model testing is completed for the Ecosystem. Databases used in the CEM analysis will be updated for any changes in 1997. Development of the access analysis process is underway and a baseline report will be generated once the process for completing the analysis is finalized.)
Funding/Personnel: District biologists, district recreation staff, GIS Coordinator, engineering staff, timber staff, Grizzly Bear/Wolf Center of Excellence (Approximately $15,000).

Monitoring Requirement: Wolf Population Status
Responsibility: TES Biologist
Due Date: March 1, 2002
Data Source: Weekly Gray Wolf Recovery Progress Report from U.S. Fish and Wildlife Service, reports received from Forest Service Employees and the public.
Funding/Personnel: 10 days GS-12 (approximately $3,000)

Monitoring Requirement: TES Sensitive Plants
RESPONSIBILITY: Sensitive Plant Coordinator
Due Date: March 1, 2002
Data Source: Various
Funding/Personnel: 3 days GS-11

Timber

Monitoring Requirement: Allowable Sale Quantity
Responsibility: Rangers and Forest Timber Staff
Due Date: March 1, 2002
Data Source: MAR Report
Funding/Personnel: Timber Zone Personnel, Forest Timber Staff, TCE personnel in Laramie. Personnel estimate is 50 days at a cost of $8,000.

Monitoring Requirement: Restocking of Clearcuts

Responsibility: District Rangers, Forest Silviculturists, Timber Staff
Due Date: March 1, 2002
Data Source: Regeneration Surveys and Stand Exams
Funding/Personnel: 20 person-days, $4,000.00

Monitoring Requirement: Timber Stand Improvement
Responsibility: Zone Timber Personnel, Contracting Officers and Inspectors
Due Date: March 1, 2002
Data Source: MAR Report, Field inspection reports, and daily diaries, RMRIS
Funding/Personnel: 40 person-days, $6,000.00

Monitoring Requirement: Growth Response
Responsibility: Zone Timber Personnel, Forest Timber Staff
Due Date: March 1, 2002
Data Source: Stage II data, regeneration survival surveys, MAR reports, RIS database.
Funding/Personnel: 50 person-days, $8,000.

Monitoring Requirement: Openings Created by Management Activities
Responsibility: Timber Staff, ID Teams, Permit or Contract Administrators
Due Date: March 1, 2002
Data Source: NEPA documents, contracts
Funding/Personnel: 20 person-days, $4,000.

Monitoring Requirement: Lands Not Suited for Timber Production
Responsibility: Zone Timber Personnel, Forest Timber Staff, and District Rangers
Due Date: March 1, 2002
Data Source: NEPA Documents, Contracts, RIS database
Funding/Personnel: 30 person-days, $6,000.

Water Resources

Monitoring Requirement: Water Quality Trend
Responsibility: North and south zone Hydrologists
Due Date: March 1, 2002
Data Source: Quantitative and qualitative field data collected and analyzed by professional and seasonal staff. Data collected is dependent upon the project type, monitoring objectives and statistical reliability required. Sampling and site selection is designed to facilitate extrapolation of data to other projects and areas.
Funding/Personnel: Funding is spread across many projects. Monitoring not specifically funded by a project is funded through normal watershed management dollars. Monitoring is conducted by one GS-12 and one GS-9 hydrologist.

Monitoring Requirement: Water Uses
Responsibility: North and south zone Hydrologists
Due Date: March 1, 2002

Data Source: Bighorn Decree and on-site information. Handled on a case-by-case basis.
Funding/Personnel: Funding is either through project dollars or normal watershed management dollars on an as needed basis. Monitoring is conducted by one GS-12 and one GS-9 hydrologist.

Soils

Monitoring Requirement: Soil Erosion
Responsibility: Forest Soil Scientist
Due Date: March 1, 2002
Data Source: Quantitative and qualitative field data collected and analyzed by professional staff. Data collected is dependent upon the project type, monitoring objectives and statistical reliability required. Sampling and site selection is designed to facilitate extrapolation of data to other projects and areas.
Funding/Personnel: Funding is spread across many projects. Monitoring not specifically funded by a project is funded through normal watershed management dollars. Monitoring is conducted by one GS-11 soil scientist.

Monitoring Requirement: Soil and Water Resource Improvement
Responsibility: North and south zone hydrologists and soil scientist.
Due Date: March 1, 2002
Data Source: Dependent upon project
Funding/Personnel: Funding is spread across many projects. Monitoring not specifically funded by a project is funded through normal watershed improvement dollars. Monitoring is conducted by one GS-11 soil scientist and one GS-12 and one GS-9 hydrologist.

Wildlife And Fish

Monitoring Requirement: Wildlife Habitat Improvements
Responsibility: Forest Wildlife Biologist
Due Date: March 1, 2002
Data Sources: Information assembled for annual MAR Report
Funding/Personnel: 1 person-day GS-12

Monitoring Requirement: Winter Range Carrying Capacity
Responsibility: Forest Wildlife Biologist
Due Date: March 1, 2002
Data Source: Data sheets from seasonal Range and Wildlife Crew
Funding/Personnel: Two GS-5 seasonals - total project cost estimate = $10,000.

Monitoring Requirement: Riparian Condition
Responsibility: Forest wide Fisheries Biologist/Riparian Coordinator
Due Date: March 1, 2002

Data Source: Riparian, watershed, aquatic habitat, range, and wildlife field data collected on key monitoring areas/sites including functioning riparian, stream morphology, key aquatic habitat parameters, browse utilization, production-utilization transects, stubble height transects, photo points and other approved methods found in the Region 2 Analysis Handbook.
Funding/Personnel: 60 days GS-7,9,11,12 (20 days range staff + 20 days GS-11 Aquatic Biologist +10 days GS-12 Hydrologist + 5 days GS-9 Hydrologist + 5 days GS-12 Wildlife Biologist). Other miscellaneous riparian monitoring = 20 days (10 days GS-12 Hydrologist and 10 days Aquatic Biologist).

Wilderness

Monitoring Requirement: Wilderness Use
Responsibility: North and south zone Recreation Coordinators
Due Date: March 1, 2002
Data Source: Observations at trailheads and user contacts.
Funding/Personnel: .5 person year for Forest, GS-4-7s; and two person days, GS-11

Monitoring Requirement: Wilderness Campsite Condition
Responsibility: North and south zone Recreation Coordinators
Due Date: March 1, 2002
Data Source: Observation and photo documentation.
Funding/Personnel: .5 person year for Forest, GS-4-7s; and 2 person days, GS-11

Visuals

Monitoring Requirement: Adopted Visual Quality Objective
Responsibility: Landscape Architect/Districts
Due Date: March 1, 2002
Data Source: Management Reviews
Funding/Personnel: 60 person days for visual monitoring of various projects, one Landscape Architect.